

1039

ACIDIC PRECIPITATION IN ONTARIO STUDY

ANNUAL STATISTICS
OF CONCENTRATION:
CUMULATIVE AMBIENT
AIR MONITORING NETWORK
1987

JULY 1990



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1987

Report prepared by:
Atmospheric Research and Special Projects Section
Air Resources Branch
Ontario Ministry of the Environment

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This report was prepared by Diane Green of the APIOS Atmospheric Deposition and Chemistry Program. However, the data themselves are a product of the combined efforts of many individuals. Precipitation samples were collected by a large number of site operators, whose names cannot be individually mentioned here, under the coordination of the APIOS environmental technicians Scott Kennedy (in the Southwestern Region), Steve Elliott (in Southeastern Region), Wim Smits (in Northwestern Region), Bill Trayling (Northeastern Region), and J.P. Varto (in Central Region). Sample handling was carried out by Sue Lampinen and Gail Fielding. Chemical analyses were performed at the Laboratory Services Branch under the coordination of Frank Tomassini. Invaluable clerical and computer assistance were provided by Peter Maher, Joseph Lamb and Roberto Banchon. All enquiries regarding the reported data should be directed to Neville Reid, Coordinator, Atmospheric Deposition and Chemistry Program, at (416) 326-1691.

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PART I

INTRODUCTION

INTRODUCTION

The data listed herein are a summary of the results acquired from the APIOS cumulative ambient air sampling network from January 1987 to December 1987. All data presented in this report have been screened for validity. Remarks and qualifications have been appended to records, and/or results where necessary. The screening procedure involves the application of a Dixon Ratio Test to concurrent data from all the sites in the same region over a given sampling period. Field comments are referred to in order to assist in the identification of problematic samples. Samples that were determined to be obvious outliers were flagged as unreliable ("U"). The sampler utilized for cumulative ambient air sampling is the Metrex AS-2 low volume air sampler. The sampler is loaded and the filter pack is exposed for 28 days beginning at 0700 h EST and terminating at 0700 h EST at the end of the sampling period. Sampling details are described in another document¹.

Station Identification

The station identification is defined by four descriptive fields (e.g. - Dorset/Cumulative/LoVol #20). The first field refers to the sampling location. The second and third fields describe the sampling interval and the instrumentation used respectively. The last numeric field refers to the index code utilized on the location map.

INTRODUCTION

This report was prepared by Diane Green. The statistical summaries presented in this report pertain to the 1987 analytical results obtained from the Acidic Precipitation in Ontario Study (APIOS) cumulative ambient air monitoring network. The relevant data can be obtained on request from the Air Resources Branch of the Ontario Ministry of the Environment. Any sample of which sampling period is less than 23 days or greater than 33 days is not included in the statistics calculations. All available data are utilized in the calculations except results reported as being unreliable (i.e., results are identified as unreasonable values by using the validation procedures; detailed description of the validation procedure is available from the Ministry upon request) or approximate (i.e., inexact results are reported due to laboratory difficulties, such as may be encountered in calibration or when the samples cannot be analyzed to confirm the reported values). In a very few cases, concentration levels exceeded the upper limit of the range of the chemical analysis. Rather than using the upper limit, a decision was made to exclude these values from the statistics generated in this report. Results labelled as <W are replaced by "zero". W is the level which the analytical technique cannot distinguish from zero. Prior to 1987, if a level was recorded less than one detection limit T, a value corresponding to one half the detection limit was utilized for statistical calculations as reported in the statistical summaries.

These values are no longer halved. Note that T is normally about ten times W, and values above the T criteria are considered to be precise and accurate. W corresponds to approximately one standard deviation of low level duplicate of real samples. In the presented statistics summaries, "Total Sulphur" is calculated by the summation of sulphur of Sulphur Dioxide" and "Sulphate".

Beginning in 1985, "Sulphur Dioxide" is corrected by the addition of nylon filter sulphate. In these reports sulphur loading on nylon filters is interpreted as sulphur dioxide. However, it is possible that organic sulphur compounds also contribute to this loading. Methods do not currently exist to quantify this contribution in routine network operation.

The statistical summaries presented in Parts III to IV include number of samples, mean (arithmetic/geometric), standard deviation (arithmetic/geometric), maximum, minimum, quartiles. These statistics are for an average sampling period.

Whatman 40 Blank Filters

The occurrence of non-zero blank values for the Whatman 40 filters used in the cumulative network should be borne in mind when interpreting data from this method. Typical loadings (mg/filter) for these blank filters, are summarized in Table 1.

Table 1

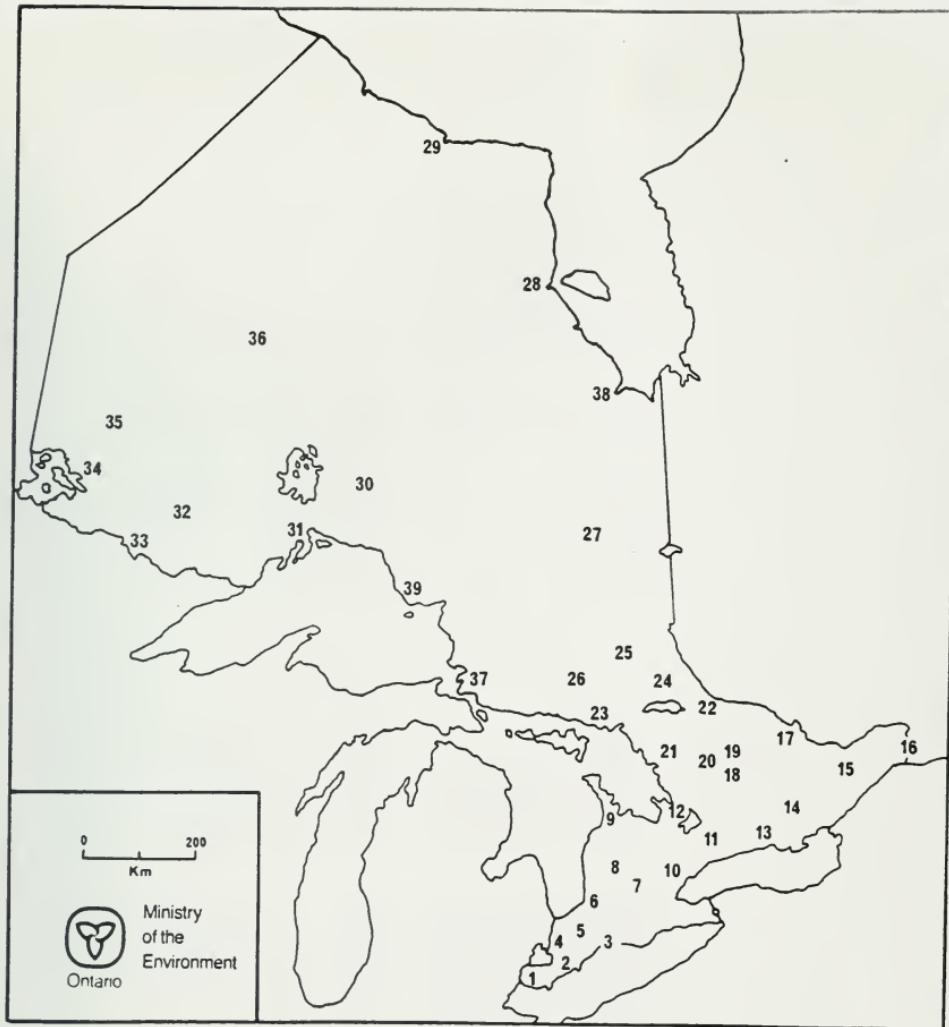
Chemical of Filters	Total	Blank Loading ($\mu\text{g}/\text{filter}$)	Number	
Parameters	Samples	Mean*	S.D.^*	$\geq W$
Sulphate	107	5.0 <T	0	22
Nitrate	107	1.4 <T	0.3	25
Calcium	96	2.88	0.68	96
Magnesium	97	0.69	1.33	65
Aluminum	97	0.59	0.56	45
Cadmium	97	0.010	0.006	91
Copper	97	0.03	0.02	70
Iron	97	0.92	0.70	95
Manganese	97	0.20	0.51	35
Nickel	97	0.04	0.07	54
Lead	97	0.12	0.13	38
Vanadium	97	0.02	0.002	36
Zinc	97	0.23	0.13	39
Sodium	107	2.66	0.95	106
Potassium	103	1.16	1.50	103
Chloride	107	8.8	2.8	105

*Calculated for $\geq W$ values only.

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PART II

STATION DESCRIPTION AND LOCATION MAP



1. Colchester*	15. Smith's Falls*	29. Winisk (rem. Dec '86)
2. Merlin	16. Dalhousie Mills*	30. Geraldton (replaced
3. Pt. Stanley*	17. Golden Lake*	Nakina, Aug '83)
4. Wilkesport*	18. Wilberforce	31. Dorion*
5. Alvinston	19. Whitney	32. Quetico Centre*
6. Huron Park	20. Dorset*	33. Lac la Croix
7. Waterloo	21. McKellar*	34. Experimental Lakes Area
8. Paimerston*	22. Mattawa*	35. Ear Falls*
9. Shallow Lake*	23. Killarney*	36. Pickle Lake*
10. Milton (removed March '84)	24. Bear Island	37. Turkey Lake*
11. Uxbridge*	25. Gowganda*	38. Moosonee* (installed October '85)
12. Coldwater	26. Azure Lake (repl. Ramsey, June '83)	39. Otter Island* (summer only)
13. Campbellford*	27. Moonbeam*	40. Sutton, Quebec (Intercomparison Site)
14. Cloyne* (repl. Kalladar, June '83)	28. Attawapiskat (rem. Feb '84)	

* indicates both a wet and dry deposition network site

ONTARIO MINISTRY OF THE ENVIRONMENT
APIOS-ACIDIC PRECIPITATION IN ONTARIO STUDY
CUMULATIVE AMBIENT AIR SITES

STATION ID	MOE REGION	STATION NAME	ELEV (M)	LATITUDE (NORTH)	LONGITUDE (WEST)	UTM GRID CO-ORDINATES (EASTING)
000001-22-21-1041	SOUTHWESTERN	COLCHESTER	183	41°59'15"	82°55'41"	4619973 340284
000001-22-21-1061	SOUTHWESTERN	PORT SPANLEY	213	42°40'22"	81°09'55"	4724277 486457
000001-22-21-1071	SOUTHWESTERN	WILKESPORT	183	42°22'11"	82°21'13"	4728515 389135
000001-22-21-1091	SOUTHWESTERN	SHALLOW LAKE	229	44°34'54"	81°06'58"	4936210 497782
000001-22-21-1101	SOUTHWESTERN	PALMERSTON	389	43°48'19"	80°54'12"	4850035 5077716
000001-22-21-3011	CENTRAL	DORSET	320	45°13'26"	78°55'52"	5009656 662429
000001-22-21-3061	CENTRAL	UXBRIDGE	244	45°12'46"	79°21'38"	4866847 642958
000001-22-21-3081	CENTRAL	CAMPBELLFORD	175	44°17'28"	79°47'33"	4907783 277202
000001-22-21-4061	SOUTHEASTERN	SMITH'S FALLS	122	45°56'41"	75°57'48"	4977044 423999
000001-22-21-4071	SOUTHEASTERN	DALHOUSIE MILLS	69	45°19'00"	74°28'13"	5018048 541521
000001-22-21-4081	SOUTHEASTERN	GOLDEN LAKE	160	45°36'48"	77°21'03"	5053226 328397
000001-22-21-4091	SOUTHEASTERN	CLOYNE	259	44°49'10"	7711'07"	4964999 327221
000001-22-21-5011	NORTHEASTERN	MCKELLAR	244	45°31'15"	78°55'19"	5041158 584196
000001-22-21-5021	NORTHEASTERN	KILLARNEY	183	45°58'20"	81°29'18"	5090859 462167
000001-22-21-5031	NORTHEASTERN	NATTAWA	198	46°16'39"	78°49'19"	516968 6671810
000001-22-21-5061	NORTHEASTERN	GONGANDA	343	47°39'04"	80°46'32"	5277329 516647
000001-22-21-5071	NORTHEASTERN	MOONBEAM	244	49°19'40"	82°01'10"	5464175 425924
000001-22-21-5141	NORTHEASTERN	TURKEY LAKES	440	47°03'15"	84°24'20"	5214246 697468
000001-22-21-5161	NORTHEASTERN	MOOSONEE	8	51°12'35"	80°42'20"	5672970 520568
000001-22-21-5201	NORTHEASTERN	MC FARLANE LAKE	246	46°25'57"	81°57'03"	5112324 426948
000001-22-21-6011	NORTHWESTERN	DORION	244	48°50'33"	88°36'45"	5410982 3811684
000001-22-21-6031	NORTHWESTERN	EAR FALLS	350	50°38'31"	93°13'13"	5608814 484424
000001-22-21-6041	NORTHWESTERN	PICKLE LAKE	360	51°02'41"	90°12'04"	5658308 636198
000001-22-21-6071	NORTHWESTERN	QUETICO CENTRE	420	48°24'44"	91°12'08"	5363461 633036
000001-22-21-6111	NORTHWESTERN	OTTER ISLAND	204	48°06'50"	86°04'25"	5329155 568954
000001-22-21-6121	NORTHWESTERN	GERALDTON	350	49°48'18"	86°45'52"	5516756 5116950

PART III

SUMMARY STATISTICS OF OBSERVED CONCENTRATION BY STATION

ONTARIO MINISTRY OF THE ENVIRONMENT
AP-905 - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION

		STATION=CAMPBELLFORD LOVOL SITE NO. 1						CHLORIDE UG/M3		POTASSIUM UG/M3	
		SULFATE UG/M3			NITRATE UG/M3			CALCIUM UG/M3		CHLORIDE UG/M3	
# OF SAMPLES		SULFUR, DIOX	SULFATE	UG/M3	NITRIC	UG/M3	NITRATE	UG/M3	UG/M3	UG/M3	UG/M3
MAXIMUM	:	11	5.95	11	6.73	11	3.531	11	3.462	11	5.58
MINIMUM	:				2.37	0.065	0.239		0.242		0.040
ARITH. MEAN	:	3.53	3.79		0.469	1.675		1.210	0.378	0.143	
ARITH. STD. DEV	:	1.46	1.61		1.077	3.552		1.156	0.098	0.103	
GEOM. MEAN	:	3.22	3.54		0.167	0.715		0.803	0.368	0.103	
1ST QUARTILE	:	2.58	2.59		0.081	0.451		0.361	0.303	0.059	
2ND QUARTILE	:	3.13	3.29		0.138	0.560		0.544	0.380	0.092	
3RD QUARTILE	:	4.67	5.01		0.183	0.801		2.258	0.449	0.165	
MISSING VALUES	:	2			2			2	2	2	
		IRON						LEAD		COPPER	
# OF SAMPLES	:	SODIUM	SULFATE	UG/M3	ALUMINUM	UG/M3	MAGNESIUM	UG/M3	UG/M3	MANGANESE	UG/M3
MAXIMUM	:	11	0.375	11	0.280	11	0.386	11	0.177	11	0.004
MINIMUM	:		0.073		0.035		0.034		0.025		0.016
ARITH. MEAN	:	0.196			0.125		0.149		0.004		0.001
ARITH. STD. DEV	:		0.106		0.080		0.122		0.051		0.002
GEOM. MEAN	:		0.172		0.103		0.109		0.043		0.001
1ST QUARTILE	:		0.113		0.057		0.051		0.033		0.002
2ND QUARTILE	:		0.188		0.124		0.124		0.046		0.003
3RD QUARTILE	:		0.277		0.176		0.243		0.085		0.003
MISSING VALUES	:	2			2		ZINC	2	SULFATE N	2	TOTAL N
		NICKEL						SULFATE N		NITRATE	
# OF SAMPLES	:	NICKEL	SULFATE	UG/M3	ZINC	UG/M3	SULFATE N	UG/M3	UG/M3	NITRATE	UG/M3
MAXIMUM	:	11	0.00362	11	0.0013	11	0.0238	11	0.0038	11	0.00
MINIMUM	:		0.00045		0.0003		0.0017		0.0039		0.00
ARITH. MEAN	:		0.0158		0.0008		0.0155		0.0087		0.00
ARITH. STD. DEV	:		0.0121		0.0003		0.0012		0.0137		0.00
GEOM. MEAN	:		0.00122		0.0008		0.00123		0.00150		0.00
1ST QUARTILE	:		0.00070		0.0005		0.0087		0.00059		0.00
2ND QUARTILE	:		0.00083		0.0007		0.0180		0.0082		0.00
3RD QUARTILE	:		0.00276		0.0012		0.0220		0.0307		0.00
MISSING VALUES	:	2					2		2		2

ONTARIO MINISTRY OF THE ENVIRONMENT
MAPS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION

ONTARIO MINISTRY OF THE ENVIRONMENT
ONTARIO - ACTIVIC PRECIPITATION IN ONTARIO STUDY

ACIDIC PRECIPITATION IN ONTARIO STUDY REPORT

ACIDIC PRECIPITATION IN ONTARIO STUDY REPORT

LIVELY SITE NO. 1									
# OF SAMPLES		STATION = COLCHESTER		LIVELY SITE NO. 1		CALCIUM		CHLORIDE	
SULFUR DIOX		SULFATE		NITRIC		UG/M ₃		UG/M ₃	
UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃
1	13	1.15	1.32	0.704	1.625	1.405	1.091	0.226	
2	13	8.20	0.13	0.132	0.791	0.32	0.520	0.071	
3	14.88	5.98	0.305	1.119	0.843	0.737	0.118		
4	8.91	3.66	0.157	0.229	0.236	0.177	0.041		
5	13.32	4.34	0.275	1.098	0.792	0.719	0.112		
6	9.85	3.84	0.208	0.909	0.661	0.620	0.083		
7	11.24	4.72	0.247	1.183	0.815	0.705	0.113		
8	18.15	8.50	0.382	1.234	1.095	0.796	0.134		
9	0	0	0	0	0	0	0		
10	MISSING VALUES								
11	SODIUM								
12	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃
13	1.3	0.389	0.383	0.472	0.308	0.072	0.0173	0.007	
14	0.140	0.110	0.025	0.004	0.008	0.0097	0.0002	0.002	
15	0.215	0.228	0.164	0.169	0.028	0.0134	0.004		
16	0.085	0.066	0.131	0.082	0.025	0.0134	0.001		
17	0.203	0.219	0.124	0.128	0.023	0.0132	0.003		
18	0.166	0.110	0.076	0.120	0.05	0.012	0.003		
19	0.182	0.217	0.111	0.166	0.025	0.0138	0.003		
20	0.256	0.268	0.259	0.220	0.038	0.0153	0.004		
21	MISSING VALUES								
22	NICKEL								
23	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃	UG/M ₃
24	1.3	0.0075	0.0565	0.01682	0.29118	21.73	1.93		
25	0.01367	0.0014	0.0214	0.00056	0.3134	5.14	0.99		
26	0.00059	0.00027	0.0416	0.00388	1.3511	9.43	1.42		
27	0.00297	0.002	0.0096	0.00561	0.8433	4.25	0.26		
28	0.00334	0.0016	0.0045	0.00179	1.0991	8.79	1.40		
29	0.00218	0.0024	0.0045	0.00081	0.5638	6.63	1.26		
30	0.00140	0.0017	0.0416	0.00109	1.1083	8.36	1.44		
31	0.00203	0.0024	0.0416	0.00055	2.0740	10.61	1.57		
32	3RD QUARTILE	MISSING VALUES	0.0303	0	0	0	0.00555	0	0.00

ONTARIO MINISTRY OF THE ENVIRONMENT
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION ATION-DIAGRAMS FROM 1950-1954

STATION DALROUS MILLS LOVOL SITE NO. 1									
CONCENTRATION OF ELEMENTS IN SAMPLES									
# OF SAMPLES		SULFUR, DIOX		SULFITE		NITRATE		CHLORIDE	
		UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3
MAXIMUM	1	5.49	11	6.17	11	0.173	11	1.110	11
MINIMUM	1	1.43	1	2.54	1	0.036	1	0.191	1
ARITH. MEAN	3.15			3.99		0.109		0.559	
GEOM. MEAN	2.84			1.30		0.044		0.474	
1ST QUARTILE	1.68			3.82		0.100		0.449	
2ND QUARTILE	3.32			2.99		0.078		0.679	
3RD QUARTILE	4.35			3.55		0.108		0.553	
MISSING VALUES				5.50		0.147		0.506	
IRON	1					1		0.743	
SODIUM	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3
MAXIMUM	11	11	11	11	11	0.373	11	0.159	11
MINIMUM	0.606	0.272	0.038	0.027	0.027	0.003	0.036	0.009	0.0411
ARITH. MEAN	0.112	0.112	0.135	0.110	0.113	0.080	0.021	0.021	0.0044
GEOM. MEAN	0.286			0.082		0.113		0.048	
1ST QUARTILE	0.161			0.111		0.076		0.057	
2ND QUARTILE	0.251			0.167		0.066		0.047	
3RD QUARTILE	0.442			0.236		0.113		0.060	
MISSING VALUES	1			0.442		0.196		0.147	
NICKEL				1		1		1	
VANADIUM	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3
MAXIMUM	11	11	11	11	11	0.0454	11	0.0386	11
MINIMUM	0.00422	0.0037	0.0006	0.0081	0.0009	0.00032	1.1537	0.00032	4.65
ARITH. MEAN	0.00024			0.00260		0.00122		0.00122	
GEOM. MEAN	0.00177			0.00112		0.00119		0.00121	
1ST QUARTILE	0.00143			0.00137		0.00131		0.00131	
2ND QUARTILE	0.00108			0.00112		0.00146		0.00084	
3RD QUARTILE	0.00148			0.00221		0.00276		0.00064	
MISSING VALUES	0.00240			0.0025		0.00362		0.00225	

ONTARIO MINISTRY OF THE ENVIRONMENT
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION

ONTARIO MINISTRY OF THE ENVIRONMENT
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

WEBS - ACTIVIC INSTITUTIONS OF CONCENTRATION

SUMMARY STATISTICS OF CONCENTRATION

STATION=DORSET LOVOL SITE NO. 1										POTASSIUM									
# OF SAMPLES		SULFATE		NITRIC		NITRATE		CALCIUM		CHLORIDE									
MAXIMUM		UG/M3		UG/M3		UG/M3		UG/M3		UG/M3									
MINIMUM		UG/M3		UG/M3		UG/M3		UG/M3		UG/M3									
ARITH. MEAN		3.25		1.19		0.065		0.033		0.054									
ARITH. STD. DEV		1.59		1.28		0.151		0.216		0.113									
GROW. MEAN		2.86		2.86		0.079		0.072		0.080									
1ST QUARTILE		2.13		2.01		0.138		0.203		0.161									
2ND QUARTILE		3.48		3.38		0.111		0.171		0.135									
3RD QUARTILE		4.00		4.16		0.156		0.215		0.147									
MISSING VALUES		0		0		0		0.278		0.189									
IRON		SODIUM		ALUMINUM		MAGNESIUM		LEAD		MANGANESE									
UG/M3		UG/M3		UG/M3		UG/M3		UG/M3		UG/M3									
# OF SAMPLES		13		13		13		13		13									
MAXIMUM		0.286		0.269		0.277		0.151		0.037									
MINIMUM		0.084		0.025		0.003		0.006		0.001									
ARITH. MEAN		0.144		0.100		0.100		0.047		0.009									
ARITH. STD. DEV		0.076		0.076		0.094		0.039		0.009									
GROW. MEAN		0.133		0.078		0.050		0.035		0.006									
1ST QUARTILE		0.099		0.050		0.012		0.019		0.004									
2ND QUARTILE		0.122		0.057		0.067		0.040		0.008									
3RD QUARTILE		0.178		0.170		0.183		0.066		0.010									
MISSING VALUES		0		0		0		0		0									
NICKEL		VANADIUM		ZINC		CADMIUM		SULFATE NYL		TOTAL SULFUR									
UG/M3		UG/M3		UG/M3		UG/M3		UG/M3		UG/M3									
# OF SAMPLES		13		13		13		13		13									
MAXIMUM		0.01228		0.00117		0.0250		0.01362		2.8471									
MINIMUM		0.0002		0.00012		0.0036		0.00114		0.7458									
ARITH. MEAN		0.00241		0.0007		0.0112		0.00267		1.2376									
ARITH. STD. DEV		0.00269		0.0004		0.0066		0.00476		0.5776									
GROW. MEAN		0.00126		0.0007		0.0096		0.00087		1.1476									
1ST QUARTILE		0.0027		0.0005		0.0062		0.00033		0.8519									
2ND QUARTILE		0.00225		0.0006		0.0100		0.00058		1.0936									
3RD QUARTILE		0.00295		0.0009		0.0134		0.00214		1.3446									
MISSING VALUES		0		0		0		0		0									
TOTAL NITRATE										NITRATE									
UG/M3										UG/M3									
13.00										13.00									

ONTARIO MINISTRY OF THE ENVIRONMENT
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION									
		STATION=EAR FALLS		LEVEL SITE NO. 1		CALCIUM		CHLORIDE	
# OF SAMPLES		SULFATE		NITRATE		UG/M ³		UG/M ³	
		UG/M ³							
# OF SAMPLES	13	1.59	2.22	0.095	1.3	0.195	0.367	0.451	0.168
MAXIMUM		0.25	0.30	0.006		0.036	0.025	0.082	0.009
MINIMUM		0.11	0.54	0.043		0.079	0.156	0.174	0.063
ARITH. MEAN		0.41	0.54	0.028		0.049	0.109	0.102	0.047
ARITH. STD. DEV									
GEOM. MEAN		0.49	0.88	0.035		0.069	0.122	0.154	0.048
1ST QUARTILE		0.27	0.60	0.025		0.047	0.084	0.101	0.025
2ND QUARTILE		0.51	0.80	0.035		0.063	0.106	0.146	0.060
3RD QUARTILE		0.81	1.16	0.066		0.266	0.222	0.222	0.087
MISSING VALUES	1		1		1	1	1	1	1
SODIUM									
# OF SAMPLES	13	0.303	0.193	0.203	0.071	0.015	0.0065	0.004	0.004
MAXIMUM		0.069	0.022	0.010		0.006	0.001	0.0010	0.000
MINIMUM		0.123	0.073	0.055		0.041	0.006	0.0029	0.001
ARITH. MEAN		0.069	0.052	0.059		0.022	0.004	0.0016	0.001
ARITH. STD. DEV									
GEOM. MEAN		0.111	0.059	0.046		0.034	0.004	0.0025	0.001
1ST QUARTILE		0.087	0.032	0.028		0.020	0.003	0.0015	0.000
2ND QUARTILE		0.091	0.052	0.037		0.041	0.006	0.0025	0.001
3RD QUARTILE		0.125	0.113	0.093		0.063	0.007	0.0041	0.001
MISSING VALUES	1		2		1	1	1	1	1
NICKEL									
# OF SAMPLES	13	0.03632	0.0010	0.0046	13	0.0194	1.0529	1.54	13.00
MAXIMUM		0.00037	0.0002	0.0006		0.00017	0.1775	0.29	0.06
MINIMUM		0.00455	0.0005	0.0026		0.00027	0.4437	0.63	0.12
ARITH. MEAN		0.01017	0.0002	0.0015		0.00419	0.2433	0.35	0.07
ARITH. STD. DEV									
GEOM. MEAN		0.00145	0.0004	0.0002		0.00076	0.1937	0.56	0.11
1ST QUARTILE		0.00056	0.0002	0.0009		0.00023	0.2615	0.39	0.08
2ND QUARTILE		0.00094	0.0004	0.0027		0.00031	0.3482	0.52	0.09
3RD QUARTILE		0.00301	0.0006	0.0039		0.00642	0.5594	0.75	0.17
MISSING VALUES	1				1			1	1.00

ONTARIO MINISTRY OF THE ENVIRONMENT
APICS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION

		STATION-GERALDTON LOWL SITE NO.1				PODAISITON			
		SULFUR, DIOX		SULFATE		NITRIC		CHLORIDE	
# OF SAMPLES	UG/M ³	UG/M ³	UG/M ³	UG/M ³	UG/M ³	UG/M ³	UG/M ³	UG/M ³	UG/M ³
MAXIMUM	2.48	2.01	0.02	0.146	0.1228	0.628	0.245	0.012	0.387
MINIMUM	0.00	0.00	0.00	0.000	0.006	0.059	0.000	0.000	0.000
ARITH. MEAN	0.63	0.86	0.03	0.033	0.069	0.209	0.111	0.062	0.062
ARITH. STD. DEV	0.71	0.67	0.038	0.038	0.065	0.186	0.046	0.101	0.101
GEOM. MEAN	0.54	0.46	0.027	0.027	0.047	0.115	0.105	0.036	0.036
1ST QUARTILE	0.22	0.21	0.021	0.021	0.027	0.030	0.034	0.011	0.011
2ND QUARTILE	0.38	0.82	0.028	0.028	0.049	0.236	0.099	0.035	0.035
3RD QUARTILE	0.80	1.48	0.043	0.043	0.093	0.327	0.124	0.064	0.064
MISSING VALUES	0	0	0	0	0	0	0	0	0
MAXIMUM	0.234	0.151	0.150	0.104	0.011	0.006	0.010	0.000	0.000
MINIMUM	0.032	0.003	0.003	0.003	0.003	0.001	0.006	0.000	0.000
ARITH. MEAN	0.099	0.047	0.043	0.043	0.004	0.019	0.018	0.002	0.002
ARITH. STD. DEV	0.053	0.044	0.046	0.046	0.034	0.004	0.018	0.004	0.004
GEOM. MEAN	0.088	0.030	0.024	0.024	0.025	0.003	0.013	0.001	0.001
1ST QUARTILE	0.072	0.012	0.010	0.010	0.009	0.001	0.006	0.000	0.000
2ND QUARTILE	0.082	0.032	0.022	0.022	0.042	0.003	0.010	0.001	0.001
3RD QUARTILE	0.111	0.070	0.078	0.078	0.067	0.007	0.030	0.002	0.002
MISSING VALUES	0	0	0	0	0	0	0	0	0
MAXIMUM	0.0296	0.0012	0.0055	0.01258	1.4028	1.4028	1.91	0.37	0.37
MINIMUM	0.00023	0.0002	0.0006	0.00008	0.0000	0.0000	0.01	0.01	0.01
ARITH. MEAN	0.00135	0.0006	0.0024	0.00275	0.4339	0.4339	0.60	0.10	0.10
ARITH. STD. DEV	0.00084	0.0004	0.0018	0.00476	0.3711	0.3711	0.56	0.10	0.10
GEOM. MEAN	0.00108	0.0005	0.0018	0.00056	0.3550	0.3550	0.29	0.07	0.07
1ST QUARTILE	0.00071	0.0003	0.0007	0.00016	0.1440	0.1440	0.18	0.05	0.05
2ND QUARTILE	0.00119	0.0005	0.0020	0.00027	0.4236	0.4236	0.54	0.08	0.08
3RD QUARTILE	0.00208	0.0009	0.0040	0.00470	0.4899	0.4899	0.82	0.12	0.12
MISSING VALUES	0	0	0	0	0	0	0.00	0.00	0.00

ONTARIO MINISTRY OF THE ENVIRONMENT
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION

STATION=GOLDEN LAKE LEVEL SITE NO.1									
		SULFATE		NITRIC		CALCIUM		CHLORIDE	
# OF SAMPLES		UG/M3		UG/A3		UG/M3		UG/M3	
MAXIMUM	3.46	13	5.57	13	0.400	13	0.909	13	0.993
MINIMUM	1.16	1.89	0.050	0.050	0.050	0.018	0.015	0.050	0.050
ARITH. STD. DEV	2.12	3.12	0.131	0.323	0.265	0.199	0.265	0.302	0.265
GEOM. MEAN	0.89	1.17	0.096	0.457	0.256	0.057	0.172	0.132	0.167
1ST QUARTILE	1.28	2.16	0.180	0.193	0.172	0.057	0.155	0.087	0.087
2ND QUARTILE	1.90	2.84	0.093	0.090	0.149	0.149	0.136	0.135	0.135
3RD QUARTILE	3.12	4.08	0.144	0.284	0.384	0.227	0.227	0.227	0.227
MISSING VALUES	2	2	1	1	2	2	2	2	2
SODIUM									
MAXIMUM	0.277	13	0.190	0.213	0.115	0.027	0.0086	0.0086	0.005
MINIMUM	0.095	0.020	0.003	0.004	0.005	0.013	0.0033	0.0033	0.001
ARITH. STD. DEV	0.157	0.080	0.065	0.061	0.035	0.007	0.0052	0.0052	0.003
GEOM. MEAN	0.051	0.052	0.066	0.061	0.048	0.011	0.0017	0.0017	0.001
1ST QUARTILE	0.150	0.065	0.039	0.021	0.038	0.008	0.0030	0.0030	0.002
2ND QUARTILE	0.119	0.086	0.035	0.035	0.054	0.010	0.0051	0.0051	0.002
3RD QUARTILE	0.161	0.102	0.110	0.100	0.100	0.019	0.0063	0.0063	0.004
MISSING VALUES	2	2	2	2	2	2	2	2	2
NICKEL									
MAXIMUM	0.00432	13	0.0018	0.0261	0.00449	1.5713	13.00	13.00	13.00
MINIMUM	0.00040	0.0003	0.0003	0.0058	0.00025	0.7386	2.81	2.81	2.12
ARITH. MEAN	0.00168	0.0011	0.0109	0.0091	1.1278	1.43	1.43	1.43	1.13
GEOM. MEAN	0.00128	0.0005	0.0058	0.00127	0.2132	2.10	2.10	2.10	0.45
1ST QUARTILE	0.00129	0.0010	0.0098	0.00056	1.0664	2.05	2.05	2.05	0.55
2ND QUARTILE	0.00076	0.0008	0.0071	0.00031	0.8357	1.58	1.58	1.58	0.16
3RD QUARTILE	0.00132	0.0011	0.0091	0.00042	1.2160	2.20	2.20	2.20	0.35
MISSING VALUES	0.00254	0.0016	0.0134	0.00064	1.3133	2.35	2.35	2.35	0.45
ZINC									
MAXIMUM	0.00432	13	0.0018	0.0261	0.00449	1.5713	13.00	13.00	13.00
MINIMUM	0.00040	0.0003	0.0003	0.0058	0.00025	0.7386	2.81	2.81	2.12
ARITH. MEAN	0.00168	0.0011	0.0109	0.0091	1.1278	1.43	1.43	1.43	1.13
GEOM. MEAN	0.00128	0.0005	0.0058	0.00127	0.2132	2.10	2.10	2.10	0.45
1ST QUARTILE	0.00129	0.0010	0.0098	0.00056	1.0664	2.05	2.05	2.05	0.55
2ND QUARTILE	0.00076	0.0008	0.0071	0.00031	0.8357	1.58	1.58	1.58	0.16
3RD QUARTILE	0.00132	0.0011	0.0091	0.00042	1.2160	2.20	2.20	2.20	0.35
MISSING VALUES	0.00254	0.0016	0.0134	0.00064	1.3133	2.35	2.35	2.35	0.45
VANADIUM									
MAXIMUM	0.00432	13	0.0018	0.0261	0.00449	1.5713	13.00	13.00	13.00
MINIMUM	0.00040	0.0003	0.0003	0.0058	0.00025	0.7386	2.81	2.81	2.12
ARITH. MEAN	0.00168	0.0011	0.0109	0.0091	1.1278	1.43	1.43	1.43	1.13
GEOM. MEAN	0.00128	0.0005	0.0058	0.00127	0.2132	2.10	2.10	2.10	0.45
1ST QUARTILE	0.00129	0.0010	0.0098	0.00056	1.0664	2.05	2.05	2.05	0.55
2ND QUARTILE	0.00076	0.0008	0.0071	0.00031	0.8357	1.58	1.58	1.58	0.16
3RD QUARTILE	0.00132	0.0011	0.0091	0.00042	1.2160	2.20	2.20	2.20	0.35
MISSING VALUES	0.00254	0.0016	0.0134	0.00064	1.3133	2.35	2.35	2.35	0.45
NITRATE									
MAXIMUM	0.00432	13	0.0018	0.0261	0.00449	1.5713	13.00	13.00	13.00
MINIMUM	0.00040	0.0003	0.0003	0.0058	0.00025	0.7386	2.81	2.81	2.12
ARITH. MEAN	0.00168	0.0011	0.0109	0.0091	1.1278	1.43	1.43	1.43	1.13
GEOM. MEAN	0.00128	0.0005	0.0058	0.00127	0.2132	2.10	2.10	2.10	0.45
1ST QUARTILE	0.00129	0.0010	0.0098	0.00056	1.0664	2.05	2.05	2.05	0.55
2ND QUARTILE	0.00076	0.0008	0.0071	0.00031	0.8357	1.58	1.58	1.58	0.16
3RD QUARTILE	0.00132	0.0011	0.0091	0.00042	1.2160	2.20	2.20	2.20	0.35
MISSING VALUES	0.00254	0.0016	0.0134	0.00064	1.3133	2.35	2.35	2.35	0.45
CHLORIDE									
MAXIMUM	0.00432	13	0.0018	0.0261	0.00449	1.5713	13.00	13.00	13.00
MINIMUM	0.00040	0.0003	0.0003	0.0058	0.00025	0.7386	2.81	2.81	2.12
ARITH. MEAN	0.00168	0.0011	0.0109	0.0091	1.1278	1.43	1.43	1.43	1.13
GEOM. MEAN	0.00128	0.0005	0.0058	0.00127	0.2132	2.10	2.10	2.10	0.45
1ST QUARTILE	0.00129	0.0010	0.0098	0.00056	1.0664	2.05	2.05	2.05	0.55
2ND QUARTILE	0.00076	0.0008	0.0071	0.00031	0.8357	1.58	1.58	1.58	0.16
3RD QUARTILE	0.00132	0.0011	0.0091	0.00042	1.2160	2.20	2.20	2.20	0.35
MISSING VALUES	0.00254	0.0016	0.0134	0.00064	1.3133	2.35	2.35	2.35	0.45
MANGANESE									
MAXIMUM	0.00432	13	0.0018	0.0261	0.00449	1.5713	13.00	13.00	13.00
MINIMUM	0.00040	0.0003	0.0003	0.0058	0.00025	0.7386	2.81	2.81	2.12
ARITH. MEAN	0.00168	0.0011	0.0109	0.0091	1.1278	1.43	1.43	1.43	1.13
GEOM. MEAN	0.00128	0.0005	0.0058	0.00127	0.2132	2.10	2.10	2.10	0.45
1ST QUARTILE	0.00129	0.0010	0.0098	0.00056	1.0664	2.05	2.05	2.05	0.55
2ND QUARTILE	0.00076	0.0008	0.0071	0.00031	0.8357	1.58	1.58	1.58	0.16
3RD QUARTILE	0.00132	0.0011	0.0091	0.00042	1.2160	2.20	2.20	2.20	0.35
MISSING VALUES	0.00254	0.0016	0.0134	0.00064	1.3133	2.35	2.35	2.35	0.45
LEAD									
MAXIMUM	0.00432	13	0.0018	0.0261	0.00449	1.5713	13.00	13.00	13.00
MINIMUM	0.00040	0.0003	0.0003	0.0058	0.00025	0.7386	2.81	2.81	2.12
ARITH. MEAN	0.00168	0.0011	0.0109	0.0091	1.1278	1.43	1.43	1.43	1.13
GEOM. MEAN	0.00128	0.0005	0.0058	0.00127	0.2132	2.10	2.10	2.10	0.45
1ST QUARTILE	0.00129	0.0010	0.0098	0.00056	1.0664	2.05	2.05	2.05	0.55
2ND QUARTILE	0.00076	0.0008	0.0071	0.00031	0.8357	1.58	1.58	1.58	0.16
3RD QUARTILE	0.00132	0.0011	0.0091	0.00042	1.2160	2.20	2.20	2.20	0.35
MISSING VALUES	0.00254	0.0016	0.0134	0.00064	1.3133	2.35	2.35	2.35	0.45
NITRATE									
MAXIMUM	0.00432	13	0.0018	0.0261	0.00449	1.5713	13.00	13.00	13.00
MINIMUM	0.00040	0.0003	0.0003	0.0058	0.00025	0.7386	2.81	2.81	2.12
ARITH. MEAN	0.00168	0.0011	0.0109	0.0091	1.1278	1.43	1.43	1.43	1.13
GEOM. MEAN	0.00128	0.0005	0.0058	0.00127	0.2132	2.10	2.10	2.10	0.45
1ST QUARTILE	0.00129	0.0010	0.0098	0.00056	1.0664	2.05	2.05	2.05	0.55
2ND QUARTILE	0.00076	0.0008	0.0071	0.00031	0.8357	1.58	1.58	1.58	0.16
3RD QUARTILE	0.00132	0.0011	0.0091	0.00042	1.2160	2.20	2.20	2.20	0.35
MISSING VALUES	0.00254	0.0016	0.0134	0.00064	1.3133	2.35	2.35	2.35	0.45
SULFUR									
MAXIMUM	0.00432	13	0.0018	0.0261	0.00449	1.5713	13.00	13.00	13.00
MINIMUM	0.00040	0.0003	0.0003	0.0058	0.00025	0.7386	2.81	2.81	2.12
ARITH. MEAN	0.00168	0.0011	0.0109	0.0091	1.1278	1.43	1.43	1.43	1.13
GEOM. MEAN	0.00128	0.0005	0.0058	0.00127	0.2132	2.10	2.10	2.10	0.45
1ST QUARTILE	0.00129	0.0010	0.0098	0.00056	1.0664	2.05	2.05	2.05	0.55
2ND QUARTILE	0.00076	0.0008	0.0071	0.00031	0.8357	1.58	1.58	1.58	0.16
3RD QUARTILE	0.00132	0.0011	0.0091	0.00042	1.2160	2.20	2.20	2.20	0.35
MISSING VALUES	0.00254	0.0016	0.0134	0.00064	1.3133	2.35	2.35	2.35	0.45
CHLORIDE									
MAXIMUM	0.00432	13	0.0018	0.0261	0.00449	1.5713	13.00	13.00	13.00
MINIMUM	0.00040	0.0003	0.0003	0.0058	0.00025	0.7386	2.81	2.81	2.12
ARITH. MEAN	0.00168	0.0011	0.0109	0.0091	1.1278	1.43	1.43	1.43	1.13
GEOM. MEAN	0.00128	0.0005	0.0058	0.00127	0.2132	2.10	2.10	2.10	0.45
1ST QUARTILE	0.00129	0.0010	0.0098	0.00056	1.0664	2.05	2.05	2.05	0.55
2ND QUARTILE	0.00076	0.0008	0.0071	0.00031	0.8357	1.58	1.58	1.58	0.16
3RD QUARTILE	0.00132	0.0011	0.0091	0.00042	1.2160	2.20	2.20	2.20	0.35
MISSING VALUES	0.00254	0.0016	0.0134	0.00064	1.3133	2.35	2.35	2.35	0.45
MANGANESE									
MAXIMUM	0.00432	13	0.0018	0.0261	0.00449	1.5713	13.00	13.00	13.00
MINIMUM	0.00040	0.0003	0.0003	0.0058	0.00025	0.7386	2.81	2.81	2.12
ARITH. MEAN	0.00168	0.0011	0.0109	0.0091	1.1278	1.43	1.43	1	

ONTARIO MINISTRY OF THE ENVIRONMENT
MAPS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION

STATEMENT OF CREDIBLE INFORMATION

ONTARIO MINISTRY OF THE ENVIRONMENT
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

THEORY STATISTICS OF CONCENTRATION

SOMETHING SPECIAL - KILLING TIME ON 1 CONVENTION

STATION-KILMARNEY LIVELAND SITE NO. 1									
# OF SAMPLES		SULFUR, DIOX		SULFATE		NITRATE		CHLORIDE	
MAXIMUM		UG/M3		UG/M3		UG/M3		UG/M3	
MINIMUM		14		14		14		14	
ARITH. MEAN		12.10	4.30	0.249	0.370	0.474	0.334	0.139	0.139
ARITH. STD. DEV		1.52	1.38	0.039	0.123	0.027	0.099	0.021	0.021
GEOM. MEAN		5.67	2.64	0.121	0.247	0.192	0.219	0.055	0.055
1ST QUARTILE		3.67	0.94	0.058	0.085	0.127	0.064	0.029	0.029
2ND QUARTILE		4.57	2.19	0.108	0.232	0.151	0.210	0.050	0.050
3RD QUARTILE		2.17	1.89	0.080	0.182	0.095	0.185	0.033	0.033
MISSING VALUES		4.69	2.50	0.118	0.245	0.182	0.211	0.052	0.052
8.85		3.55	0.146	0.134	0.256	0.256	0.256	0.065	0.065
0		0	0	0	0	0	0	0	0
SODIUM		IRON		ALUMINUM		LEAD		MANGANESE	
UG/M3		UG/M3		UG/M3		UG/M3		UG/M3	
MAXIMUM		14	14	14	14	14	14	14	14
MINIMUM		0.237	0.155	0.187	0.070	0.019	0.0061	0.008	0.008
ARITH. MEAN		0.084	0.025	0.028	0.011	0.002	0.0020	0.002	0.002
ARITH. STD. DEV		0.118	0.080	0.092	0.047	0.009	0.0039	0.005	0.005
GEOM. MEAN		0.041	0.043	0.048	0.019	0.0012	0.0012	0.004	0.004
1ST QUARTILE		0.059	0.059	0.078	0.042	0.007	0.0037	0.0037	0.0037
2ND QUARTILE		0.089	0.046	0.038	0.029	0.004	0.0029	0.003	0.003
3RD QUARTILE		0.106	0.072	0.105	0.048	0.008	0.0042	0.005	0.005
MISSING VALUES		0.130	0.113	0.126	0.064	0.012	0.0047	0.007	0.007
NICKEL		VANADIUM		ZINC		CADMIUM		TOTAL NITRATE	
UG/M3		UG/M3		UG/M3		UG/M3		UG/M3	
MAXIMUM		14	14	14	14	14	14	14	14
MINIMUM		0.00953	0.0064	0.0239	0.01171	1.3634	14.00	14.00	14.00
ARITH. MEAN		0.00052	0.0002	0.0023	0.00003	0.2811	7.27	0.58	0.58
ARITH. STD. DEV		0.00270	0.0012	0.0106	0.00263	0.7703	1.22	0.17	0.17
GEOM. MEAN		0.00225	0.0016	0.0067	0.00412	0.3510	3.71	0.37	0.37
1ST QUARTILE		0.00213	0.00088	0.0087	0.00081	0.6680	3.30	0.13	0.13
2ND QUARTILE		0.00150	0.0004	0.0047	0.00040	0.4522	2.25	0.26	0.26
3RD QUARTILE		0.00192	0.0008	0.0049	0.00061	0.8139	3.14	0.34	0.34
MISSING VALUES		0	0	0	0	0	0.0223	0.0223	0.0223
0		0		0		0		0	
COPPER		LEAD		MANGANESE		TOTAL NITRATE		TOTAL NITRATE	
UG/M3		UG/M3		UG/M3		UG/M3		UG/M3	
MAXIMUM		14	14	14	14	14	14	14	14
MINIMUM		0.00012	0.0001	0.0001	0.00001	0.00001	0.00001	0.00001	0.00001
ARITH. MEAN		0.00012	0.0001	0.0001	0.00001	0.00001	0.00001	0.00001	0.00001
ARITH. STD. DEV		0.00025	0.00016	0.00067	0.00012	0.00012	0.00012	0.00012	0.00012
GEOM. MEAN		0.000213	0.000088	0.0087	0.00081	0.00081	0.00081	0.00081	0.00081
1ST QUARTILE		0.000150	0.0004	0.0047	0.00040	0.00040	0.00040	0.00040	0.00040
2ND QUARTILE		0.000192	0.0008	0.0049	0.00061	0.00061	0.00061	0.00061	0.00061
3RD QUARTILE		0	0	0	0	0	0	0	0
MISSING VALUES		0		0		0		0	
SULFUR		TOTAL NITRATE		SULFUR		TOTAL NITRATE		SULFUR	
UG/M3		UG/M3		UG/M3		UG/M3		UG/M3	
MAXIMUM		14	14	14	14	14	14	14	14
MINIMUM		0.00012	0.0001	0.0001	0.00001	0.00001	0.00001	0.00001	0.00001
ARITH. MEAN		0.00012	0.0001	0.0001	0.00001	0.00001	0.00001	0.00001	0.00001
ARITH. STD. DEV		0.00025	0.00016	0.00067	0.00012	0.00012	0.00012	0.00012	0.00012
GEOM. MEAN		0.000213	0.000088	0.0087	0.00081	0.00081	0.00081	0.00081	0.00081
1ST QUARTILE		0.000150	0.0004	0.0047	0.00040	0.00040	0.00040	0.00040	0.00040
2ND QUARTILE		0.000192	0.0008	0.0049	0.00061	0.00061	0.00061	0.00061	0.00061
3RD QUARTILE		0	0	0	0	0	0	0	0
MISSING VALUES		0		0		0		0	

ONTARIO MINISTRY OF THE ENVIRONMENT
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION

THE JOURNAL OF CLIMATE VOL. 17, 2004

STATION=MALLA 188L SITE NO. 1

		PODALISIUM		CHLORIDE		NITRATE		CALCIUM		UG/M ³		MANGANESE		COPPER	
# OF SAMPLES		UG/M ³													
1	STUDY, DICK	13	13	5.22	0.153	0.211	0.623	0.501	0.501	0.191	13	0.191	0.044	0.044	0.044
1	MAXIMUM	10.91	1.63	0.028	0.050	0.057	0.132	0.132	0.132	0.044	13	0.044	0.044	0.044	0.044
1	MINIMUM	0.76	2.67	0.073	0.128	0.287	0.286	0.286	0.286	0.098	13	0.098	0.098	0.098	0.098
1	ARITH. MEAN	3.60	1.08	0.031	0.046	0.120	0.208	0.106	0.106	0.039	13	0.039	0.039	0.039	0.039
1	ARITH. STD. DEV.	2.92	2.75	0.067	0.120	0.213	0.268	0.268	0.268	0.093	13	0.093	0.093	0.093	0.093
1	GEOM. MEAN	2.75	2.49	0.054	0.097	0.105	0.214	0.214	0.214	0.070	13	0.070	0.070	0.070	0.070
1	1ST QUARTILE	1.84	1.78	0.054	0.097	0.105	0.214	0.214	0.214	0.070	13	0.070	0.070	0.070	0.070
1	2ND QUARTILE	2.19	2.26	0.067	0.125	0.218	0.276	0.276	0.276	0.092	13	0.092	0.092	0.092	0.092
1	3RD QUARTILE	5.52	3.18	0.087	0.160	0.476	0.326	0.326	0.326	0.129	13	0.129	0.129	0.129	0.129
1	MISSING VALUES	0	0	0	0	0	0	0	0	0	13	0	0	0	0
1	STUDY, IRON	0	0	0	0	0	0	0	0	0	13	0	0	0	0
1	MAXIMUM	13	13	5.80	2.590	0.625	0.014	0.0367	0.0367	0.026	13	0.026	0.026	0.026	0.026
1	MINIMUM	0.312	0.054	0.027	0.027	0.027	0.003	0.0036	0.0036	0.002	13	0.002	0.002	0.002	0.002
1	ARITH. MEAN	0.126	0.579	0.777	0.266	0.009	0.0167	0.0167	0.0167	0.005	13	0.005	0.005	0.005	0.005
1	ARITH. STD. DEV.	0.169	0.511	0.818	0.211	0.003	0.0111	0.0111	0.0111	0.006	13	0.006	0.006	0.006	0.006
1	GEOM. MEAN	0.164	0.385	0.368	0.190	0.008	0.0133	0.0133	0.0133	0.004	13	0.004	0.004	0.004	0.004
1	1ST QUARTILE	0.139	0.205	0.134	0.106	0.006	0.0077	0.0077	0.0077	0.003	13	0.003	0.003	0.003	0.003
1	2ND QUARTILE	0.150	0.430	0.416	0.201	0.008	0.0133	0.0133	0.0133	0.004	13	0.004	0.004	0.004	0.004
1	3RD QUARTILE	0.188	0.698	1.419	0.495	0.011	0.0259	0.0259	0.0259	0.005	13	0.005	0.005	0.005	0.005
1	MISSING VALUES	0	0	0	0	0	0	0	0	0	13	0	0	0	0
1	NICKEL	13	13	UG/M ³	13	UG/M ³	UG/M ³	UG/M ³	UG/M ³						
1	MAXIMUM	0.00783	0.0029	0.1599	0.01703	1.1356	6.33	6.33	6.33	0.34	13	0.34	0.34	0.34	0.34
1	MINIMUM	0.00016	0.0058	0.0058	0.00007	0.4225	1.09	1.09	1.09	0.10	13	0.10	0.10	0.10	0.10
1	ARITH. MEAN	0.00245	0.0011	0.0278	0.00312	0.7374	2.69	2.69	2.69	0.20	13	0.20	0.20	0.20	0.20
1	ARITH. STD. DEV.	0.00194	0.0009	0.004	0.00529	0.2405	1.42	1.42	1.42	0.07	13	0.07	0.07	0.07	0.07
1	GEOM. MEAN	0.00180	0.0008	0.0181	0.00081	0.7023	2.11	2.11	2.11	0.19	13	0.19	0.19	0.19	0.19
1	1ST QUARTILE	0.00121	0.0004	0.0109	0.00029	0.5376	1.52	1.52	1.52	0.16	13	0.16	0.16	0.16	0.16
1	2ND QUARTILE	0.00190	0.0008	0.0152	0.00052	0.7015	2.35	2.35	2.35	0.18	13	0.18	0.18	0.18	0.18
1	3RD QUARTILE	0.00319	0.0018	0.0249	0.00476	0.9429	3.41	3.41	3.41	0.24	13	0.24	0.24	0.24	0.24
1	MISSING VALUES	0	0	0	0	0	0	0	0	0	13	0	0	0	0

ONTARIO MINISTRY OF THE ENVIRONMENT
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SIMILAR STATISTICS OF COAGULATION

ONTARIO MINISTRY OF THE ENVIRONMENT
APICS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION									
STATION=MORBEAN LVL01 SITE NO.1									
		SULFUR, DIOX		SULFATE		NITRATE		CALCIUM	
# OF SAMPLES		UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3
# OF SAMPLES	:	11	11	11	11	11	11	11	11
MAXIMUM	:	1.90	2.16	0.054	0.131	0.988	0.388	0.084	0.084
MINIMUM	:	0.54	0.97	0.016	0.043	0.060	0.102	0.013	0.013
ARITH. MEAN	:	1.11	1.48	0.028	0.074	0.475	0.179	0.044	0.044
ARITH. STD. DEV	:	0.50	0.40	0.013	0.027	0.327	0.075	0.023	0.023
GEOM. MEAN	:	1.00	1.43	0.026	0.069	0.349	0.169	0.039	0.039
1ST QUARTILE	:	0.55	1.10	0.018	0.046	0.203	0.134	0.024	0.024
2ND QUARTILE	:	1.12	1.43	0.023	0.066	0.410	0.171	0.037	0.037
3RD QUARTILE	:	1.57	1.77	0.036	0.100	0.754	0.186	0.062	0
MISSING VALUES	:	0	0	0	0	0	0	0	0
# OF SAMPLES		UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3
MAXIMUM	:	0.356	0.186	0.294	0.195	0.023	0.023	0.0076	0.004
MINIMUM	:	0.088	0.005	0.027	0.023	0.001	0.001	0.0009	0.000
ARITH. MEAN	:	0.131	0.097	0.130	0.101	0.007	0.0040	0.002	0.002
ARITH. STD. DEV	:	0.077	0.064	0.097	0.056	0.007	0.0020	0.001	0.001
GEOM. MEAN	:	0.119	0.067	0.097	0.086	0.005	0.0034	0.002	0.002
1ST QUARTILE	:	0.084	0.038	0.040	0.057	0.003	0.0013	0.002	0.002
2ND QUARTILE	:	0.108	0.098	0.110	0.090	0.004	0.0036	0.002	0.002
3RD QUARTILE	:	0.116	0.163	0.207	0.154	0.012	0.0053	0.003	0.003
MISSING VALUES	:	0	0	0	0	0	0	0	0
# OF SAMPLES		UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3
MAXIMUM	:	0.00896	0.0054	0.0357	0.0181	0.8675	1.1	11.00	11.00
MINIMUM	:	0.00013	0.0002	0.0012	0.0004	0.678	1.53	0.16	0.16
ARITH. MEAN	:	0.00158	0.0010	0.0075	0.00257	0.6072	1.05	0.06	0.06
ARITH. STD. DEV	:	0.00255	0.0005	0.009	0.0033	0.1636	0.32	0.03	0.03
GEOM. MEAN	:	0.00076	0.0005	0.0047	0.0042	0.8831	1.00	0.10	0.10
1ST QUARTILE	:	0.00049	0.0003	0.0023	0.0018	0.5319	0.75	0.08	0.08
2ND QUARTILE	:	0.00056	0.0004	0.0035	0.0027	0.5835	1.12	0.09	0.09
3RD QUARTILE	:	0.00144	0.0009	0.0067	0.0056	0.7421	1.31	0.12	0.12
MISSING VALUES	:	0	0	0	0	0	0	0.00	0.00

ONTARIO MINISTRY OF THE ENVIRONMENT

APPROS = ASBESTIC PRECIPITATION SITES

SUMMARY STATISTICS OF CONCENTRATION

ONTARIO MINISTRY OF THE ENVIRONMENT
APICS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION

		STATION-OUTER ISLAND LOOOL SITE NO.1		CHLORIDE UG/M ³		POPULATION UG/M ³	
		NITRIC UG/M ³		NITRATE UG/M ³		CALCIUM UG/M ³	
		SULFUR-DIOX UG/M ³		SULFATE UG/M ³		LEAD UG/M ³	
# OF SAMPLES	:	6	6	6	6	6	6
MAXIMUM	:	1.59	1.02	0.44	0.112	0.205	0.135
MINIMUM	:	0.65	0.37	0.031	0.070	0.041	0.076
ARITH. MEAN	:	0.93	0.67	0.038	0.085	0.109	0.096
ARITH. STD. DEV	:	0.39	0.28	0.005	0.017	0.067	0.024
GEOM. MEAN	:	0.88	0.63	0.038	0.084	0.093	0.094
1ST QUARTILE	:	0.65	0.42	0.033	0.071	0.053	0.043
2ND QUARTILE	:	0.88	0.61	0.040	0.083	0.089	0.088
3RD QUARTILE	:	1.24	0.96	0.043	0.100	0.176	0.118
MISSING VALUES	:	1	1	1	1	1	1
# OF SAMPLES	:	6	6	6	6	6	6
MAXIMUM	:	0.085	0.053	0.113	0.056	0.005	0.006
MINIMUM	:	0.060	0.019	0.015	0.003	0.001	0.000
ARITH. MEAN	:	0.078	0.031	0.048	0.022	0.003	0.001
ARITH. STD. DEV	:	0.010	0.014	0.041	0.021	0.002	0.009
GEOM. MEAN	:	0.077	0.029	0.036	0.015	0.002	0.001
1ST QUARTILE	:	0.070	0.019	0.018	0.008	0.001	0.006
2ND QUARTILE	:	0.080	0.032	0.028	0.016	0.004	0.006
3RD QUARTILE	:	0.085	0.043	0.089	0.039	0.005	0.018
MISSING VALUES	:	1	1	1	1	1	1
NICKEL		VARIATION	ZINC	CADMUM	SULFATE N	TOTAL N	TOTAL N
# OF SAMPLES	:	6	6	6	6	6	6
MAXIMUM	:	0.00100	0.0013	0.0113	0.00996	0.9340	6.00
MINIMUM	:	0.00021	0.0004	0.0006	0.00013	0.6284	0.15
ARITH. MEAN	:	0.00060	0.0009	0.0032	0.00213	0.7499	0.10
ARITH. STD. DEV	:	0.00036	0.0005	0.0046	0.00438	0.1262	0.02
GEOM. MEAN	:	0.00049	0.0007	0.0017	0.00037	0.7417	0.66
1ST QUARTILE	:	0.00023	0.0004	0.0008	0.00013	0.6399	0.52
2ND QUARTILE	:	0.00063	0.0010	0.0013	0.00015	0.7192	0.63
3RD QUARTILE	:	0.00094	0.0013	0.0064	0.00511	0.8753	0.14
MISSING VALUES	:	1	1	1	1	1	1.00

ONTARIO MINISTRY OF THE ENVIRONMENT
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

ONTARIO MINISTRY OF THE ENVIRONMENT
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION

		STATION=PICTLE LAKE LEVEL SITE NO.1		PODASSUM	
		SULFUR DIOX	SULFATE	CHLORIDE	UG/M3
# OF SAMPLES	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3
MAXIMUM	1.61	1.93	0.078	0.148	0.529
MINIMUM	0.00	0.04	0.006	0.025	0.032
MEAN	0.59	1.01	0.029	0.063	0.042
STD. DEV.	0.56	0.49	0.022	0.036	0.025
GEOM. MEAN	0.53	0.80	0.022	0.025	0.026
1ST QUARTILE	0.19	0.69	0.015	0.032	0.120
2ND QUARTILE	0.39	1.02	0.019	0.054	0.144
3RD QUARTILE	0.99	1.29	0.041	0.084	0.231
MISSING VALUES	0	0	0	0	0
# OF SAMPLES		SODIUM	IRON	LEAD	COPPER
MAXIMUM	13	13	13	13	13
MINIMUM	0.379	0.339	0.367	0.219	0.023
MEAN	0.663	0.605	0.066	0.066	0.0006
STD. DEV.	0.143	0.140	0.118	0.097	0.0034
GEOM. MEAN	0.687	0.116	0.121	0.068	0.0025
1ST QUARTILE	0.125	0.084	0.065	0.064	0.0023
2ND QUARTILE	0.165	0.035	0.030	0.035	0.0004
3RD QUARTILE	0.122	0.109	0.083	0.091	0.0008
MISSING VALUES	0	0	0	0.140	0.0066
# OF SAMPLES		NICKEL	VANADIUM	CADMUM	0
MAXIMUM	13	13	13	13	0
MINIMUM	0.00506	0.0011	0.0036	0.01181	0.00010
MEAN	0.00017	0.0002	0.0006	0.00261	0.00261
STD. DEV.	0.00231	0.0005	0.0009	0.00052	0.00052
GEOM. MEAN	0.00178	0.0003	0.0017	0.00112	0.00018
1ST QUARTILE	0.00146	0.0004	0.0002	0.00018	0.00023
2ND QUARTILE	0.00046	0.0002	0.0005	0.00027	0.00027
3RD QUARTILE	0.00180	0.0005	0.0008	0.00523	0.00523
MISSING VALUES	0	0	0	0	0
# OF SAMPLES		UG/M3	UG/M3	UG/M3	TOTAL NITRATE
MAXIMUM	1.3	1.3	1.3	1.3	UG/M3
MINIMUM	0.00056	0.0011	0.0036	0.01181	0.00010
MEAN	0.00017	0.00017	0.0006	0.00261	0.00261
STD. DEV.	0.00231	0.0005	0.0009	0.00052	0.00052
GEOM. MEAN	0.00178	0.0003	0.0017	0.00112	0.00018
1ST QUARTILE	0.00146	0.0004	0.0002	0.00018	0.00023
2ND QUARTILE	0.00046	0.0002	0.0005	0.00027	0.00027
3RD QUARTILE	0.00180	0.0005	0.0008	0.00523	0.00523
MISSING VALUES	0	0	0	0	0

ONTARIO MINISTRY OF THE ENVIRONMENT
 APTOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION											
STATION=PORT STANLEY LOLOV SITE NO. 1											
SULFUR DIOX			SULFATE			NITRIC			CALCIUM		
# OF SAMPLES	UG/M ³										
MAXIMUM	13	19.84	11.25	0.545	0.116	1.3	1.357	1.719	1.3	0.808	0.143
MINIMUM	4.54	4.54	2.58	0.52	0.305	0.926	0.259	0.730	0.364	0.096	0.044
ARITH. MEAN	8.81	8.81	5.52	0.144	0.144	0.258	0.408	0.408	0.133	0.033	0.033
ARITH. STD. DEV	3.95	3.95	2.67	0.273	0.273	0.893	0.647	0.647	0.489	0.092	0.092
GEOM. MEAN	8.18	8.18	5.01	0.221	0.221	0.411	0.496	0.496	0.408	0.069	0.069
1ST QUARTILE	6.54	6.54	3.56	0.276	0.276	0.895	0.592	0.592	0.477	0.098	0.098
2ND QUARTILE	8.20	8.20	4.48	0.445	0.445	1.209	0.836	0.836	0.555	0.128	0.128
3RD QUARTILE	9.83	9.83	6.71	0.445	0.445	1.209	0.836	0.836	0.555	0.128	0.128
MISSING VALUES	1	1	2	1	1	2	2	2	2	1	1
SODIUM			IRON			ALUMINUM			LEAD		
# OF SAMPLES	UG/M ³										
MAXIMUM	13	0.322	0.510	0.620	0.336	0.036	0.036	0.036	0.0278	0.004	0.004
MINIMUM	0.118	0.059	0.014	0.014	0.004	0.004	0.004	0.004	0.0072	0.001	0.001
ARITH. MEAN	0.168	0.168	0.195	0.175	0.114	0.016	0.016	0.016	0.0125	0.003	0.003
ARITH. STD. DEV	0.057	0.123	0.123	0.118	0.084	0.009	0.009	0.009	0.0058	0.001	0.001
GEOM. MEAN	0.161	0.161	0.167	0.112	0.081	0.014	0.014	0.014	0.0116	0.003	0.003
1ST QUARTILE	0.130	0.130	0.116	0.054	0.079	0.010	0.010	0.010	0.0092	0.003	0.003
2ND QUARTILE	0.148	0.148	0.167	0.108	0.099	0.016	0.016	0.016	0.0108	0.003	0.003
3RD QUARTILE	0.193	0.193	0.261	0.292	0.127	0.018	0.018	0.018	0.0155	0.004	0.004
MISSING VALUES	1	1	2	2	2	2	2	2	2	2	2
NICKEL			VANADIUM			CADMIUM			SULFATE NTL		
# OF SAMPLES	UG/M ³										
MAXIMUM	13	0.00355	0.0075	0.0363	0.01116	1.3	1.3	1.3	12.0209	13.00	13.00
MINIMUM	0.00040	0.0014	0.0006	0.00038	0.00033	0.6205	2.3251	2.3251	11.23	1.62	1.62
ARITH. MEAN	0.00194	0.0024	0.0268	0.00333	0.00431	3.3251	6.43	6.43	3.76	0.97	0.97
ARITH. STD. DEV	0.00095	0.0017	0.0091	0.00431	0.1266	1.83	1.83	1.83	1.22	0.23	0.23
GEOM. MEAN	0.00169	0.0024	0.0016	0.00147	0.00145	1.5489	6.23	6.23	5.60	1.03	1.03
1ST QUARTILE	0.00124	0.00124	0.00279	0.00047	0.00047	1.8054	5.60	5.60	5.60	1.17	1.17
2ND QUARTILE	0.00157	0.0018	0.0290	0.00073	0.00073	1.5404	6.15	6.15	6.15	1.49	1.49
3RD QUARTILE	0.00253	0.0025	0.0302	0.0073	0.0073	2.3370	6.94	6.94	2.00	2.00	2.00
MISSING VALUES	2	2	2	2	2	2	2	2	1	2	2

ONTARIO MINISTRY OF THE ENVIRONMENT
APICS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION

		STATION-CUETICO CENTRE LEVEL SITE NO.1				POTASSIUM UG/M ³	
		SULFUR, DIOX	SULFATE UG/M ³	NITRIC UG/M ³	NITRATE UG/M ³	CALCIUM UG/M ³	CHLORIDE UG/M ³
# OF SAMPLES	:	13	13	13	13	13	13
MAXIMUM	:	1.75	2.17	0.137	0.275	0.341	0.266
MINIMUM	:	0.25	0.73	0.002	0.049	0.045	0.015
ARITH. MEAN	:	0.74	1.20	0.054	0.109	0.144	0.134
ARITH. STD. DEV	:	0.43	0.47	0.037	0.077	0.093	0.066
GEOM. MEAN	:	0.64	1.13	0.039	0.090	0.119	0.128
1ST QUARTILE	:	0.40	0.78	0.032	0.053	0.073	0.059
2ND QUARTILE	:	0.67	1.16	0.044	0.071	0.111	0.131
3RD QUARTILE	:	1.08	1.43	0.078	0.154	0.220	0.160
MISSING VALUES	:	1	1	1	1	1	1
# OF SAMPLES	:	13	13	13	13	13	13
MAXIMUM	:	0.334	0.172	0.109	0.057	0.012	0.006
MINIMUM	:	0.066	0.021	0.007	0.008	0.006	0.000
ARITH. MEAN	:	0.124	0.068	0.041	0.033	0.004	0.0027
ARITH. STD. DEV	:	0.077	0.039	0.030	0.020	0.015	0.001
GEOM. MEAN	:	0.109	0.060	0.032	0.019	0.003	0.0022
1ST QUARTILE	:	0.076	0.042	0.021	0.022	0.001	0.001
2ND QUARTILE	:	0.095	0.068	0.031	0.033	0.002	0.002
3RD QUARTILE	:	0.150	0.074	0.064	0.047	0.009	0.0043
MISSING VALUES	:	1	1	1	1	1	1
# OF SAMPLES	:	13	13	13	13	13	13
MAXIMUM	:	0.00280	0.0013	0.0047	0.01549	1.2402	1.300
MINIMUM	:	0.00012	0.0002	0.0006	0.00009	0.0927	1.60
ARITH. MEAN	:	0.00110	0.0004	0.0026	0.00255	0.6555	0.40
ARITH. STD. DEV	:	0.00097	0.0004	0.0015	0.00482	0.36228	0.77
GEOM. MEAN	:	0.00068	0.0005	0.0020	0.00054	0.3416	0.14
1ST QUARTILE	:	0.00034	0.0002	0.0007	0.00018	0.4024	0.48
2ND QUARTILE	:	0.00077	0.0004	0.0033	0.00029	0.5290	0.10
3RD QUARTILE	:	0.00213	0.0009	0.0039	0.00313	1.0230	0.71
MISSING VALUES	:	1	1	1	1	1	1

ONTARIO MINISTRY OF THE ENVIRONMENT
ONARIO - ACIDIC PRECIPITATION IN ONTARIO STUDY

MEILOS - MÉTODOS INVESTIGATIVOS EN CONCENTRACIÓN

ONTARIO MINISTRY OF THE ENVIRONMENT
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION

		STATION=SMITHS FALLS LOWLOV SITE NO.1			POTASSIUM UG/NM3		
		NITRIC UG/NM3			CHLORIDE UG/NM3		
		SULFATE UG/NM3			CALCIUM UG/NM3		
# OF SAMPLES	13	13	13	13	13	13	13
MAXIMUM	4.47	5.79	0.209	0.660	1.794	0.476	0.235
MINIMUM	0.72	0.15	0.055	0.194	0.134	0.207	0.046
ARITH. MEAN	2.53	3.11	0.110	0.417	0.835	0.325	0.102
ARITH. STD. DEV.	1.04	1.59	0.047	0.159	0.548	0.076	0.060
GEOM. MEAN	2.29	2.44	0.101	0.387	0.643	0.317	0.089
1ST QUARTILE	1.64	2.39	0.070	0.274	0.337	0.258	0.057
2ND QUARTILE	2.68	3.06	0.093	0.390	0.787	0.327	0.175
3RD QUARTILE	3.43	4.21	0.148	0.523	1.143	0.391	0.159
MISSING VALUES	0	0	0	0	0	0	0
# OF SAMPLES	13	13	13	13	13	13	13
MAXIMUM	0.334	0.293	0.389	0.548	0.036	0.0205	0.005
MINIMUM	0.093	0.034	0.013	0.004	0.008	0.0036	0.001
ARITH. MEAN	0.166	0.136	0.124	0.252	0.016	0.0106	0.002
ARITH. STD. DEV.	0.067	0.077	0.130	0.173	0.008	0.0051	0.001
GEOM. MEAN	0.175	0.115	0.012	0.160	0.014	0.0095	0.002
1ST QUARTILE	0.137	0.089	0.025	0.100	0.011	0.0067	0.001
2ND QUARTILE	0.186	0.123	0.055	0.233	0.013	0.010	0.002
3RD QUARTILE	0.230	0.174	0.191	0.319	0.019	0.0136	0.003
MISSING VALUES	0	1	1	1	1	1	1
NICKEL	UG/NM3	ZINC	CADMIUM	SULFATE NYL	SULFATE NYL	TOTAL N	TOTAL NITRATE UG/NM3
# OF SAMPLES	13	13	13	13	13	13	13.00
MAXIMUM	0.00299	0.00349	0.0232	0.00241	1.5143	3.10	0.87
MINIMUM	0.00013	0.0002	0.0064	0.00027	0.5639	0.67	0.26
ARITH. MEAN	0.00141	0.00013	0.0136	0.00085	0.0281	2.30	0.53
ARITH. STD. DEV.	0.00089	0.0009	0.0054	0.00081	0.3105	0.67	0.19
GEOM. MEAN	0.00111	0.0011	0.0126	0.00061	0.9763	2.17	0.50
1ST QUARTILE	0.00082	0.0006	0.0090	0.00031	0.6881	1.90	0.38
2ND QUARTILE	0.00110	0.0013	0.0133	0.00049	1.0567	2.51	0.55
3RD QUARTILE	0.00214	0.0016	0.0161	0.00141	1.3347	2.78	0.62
MISSING VALUES	0	1	1	1	0	0.00	0.00

ONTARIO MINISTRY OF THE ENVIRONMENT APPROS - ACIDIC PRECIPITATION IN ONTARIO STUDY

APIUS - ACIDIC PRECIPITATION IN UMLAKO 3100

ONTARIO MINISTRY OF THE ENVIRONMENT
MAPS - ACIDIC PRECIPITATION IN ONTARIO STUDY

PRIMARY STATISTICS OF CONCENTRATION

ONTARIO MINISTRY OF THE ENVIRONMENT
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION									
STATION-WILLESPORT LOWL SITE NO. 1									
SULFUR, DICK		SULFATE		NITRIC		NITRATE		CHLORIDE	
# OF SAMPLES	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3
6	13	22.09	9.13	0.522	0.552	1.638	2.735	0.975	0.149
MAXIMUM		4.71	0.12	0.018	0.210	0.992	0.278	0.433	0.040
MINIMUM		12.12	5.24	0.145	0.145	0.344	1.012	0.652	0.093
ARITH. STD. DEV		4.51	2.53	0.160	0.160	0.940	0.654	0.153	0.030
GEOM. MEAN		11.37	3.97	0.100	0.100	0.717	0.456	0.636	0.068
1ST QUARTILE		9.40	4.81	0.168	0.168	0.914	0.855	0.558	0.072
2ND QUARTILE		11.18	7.06	0.322	0.351	1.311	1.311	0.639	0.093
3RD QUARTILE		14.76	0	0	0	0	0	0.679	0.118
MISSING VALUES		0	0	0	0	0	0	0	0
SODIUM		IRON		ALUMINUM		MAGNESIUM		LEAD	
# OF SAMPLES	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3
6	13	0.355	0.618	0.643	0.497	0.051	0.0200	0.007	0.007
MAXIMUM		0.355	0.618	0.643	0.052	0.003	0.004	0.001	0.001
MINIMUM		0.092	0.042	0.020	0.176	0.163	0.021	0.099	0.004
ARITH. STD. DEV		0.181	0.205	0.171	0.171	0.129	0.015	0.0041	0.002
GEOM. MEAN		0.073	0.145	0.119	0.119	0.109	0.016	0.0092	0.003
1ST QUARTILE		0.170	0.168	0.127	0.122	0.083	0.008	0.0069	0.003
2ND QUARTILE		0.133	0.156	0.172	0.113	0.135	0.019	0.0095	0.003
3RD QUARTILE		0.156	0.208	0.246	0.262	0.222	0.028	0.0116	0.004
MISSING VALUES		0	0	0	0	0	0	0	0
NICKEL		VANADIUM		ZINC		CADMIUM		SULFATE N.Y.	
# OF SAMPLES	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3**3	UG/M3**3
6	13	0.00350	0.00446	0.0537	0.0537	0.01495	2.9728	13.00	13.00
MAXIMUM		0.00092	0.00118	0.0204	0.00059	0.00059	4.2884	12.65	1.91
MINIMUM		0.00223	0.0030	0.0353	0.00340	0.00340	1.3379	4.28	0.83
ARITH. STD. DEV		0.00085	0.0009	0.0102	0.00478	0.00478	0.7067	7.81	1.20
GEOM. MEAN		0.00085	0.0029	0.0339	0.00158	0.00158	2.44	2.44	0.31
1ST QUARTILE		0.00206	0.00150	0.0282	0.00664	0.00664	7.46	7.46	1.17
2ND QUARTILE		0.00150	0.00232	0.00310	0.00885	0.00885	6.20	6.20	1.00
3RD QUARTILE		0.00297	0.0036	0.0432	0.00575	0.00575	7.25	7.25	1.11
MISSING VALUES		0	0	0	0	0	0.60	1.40	0.00

PART IV

SUMMARY STATISTICS OF OBSERVED CONCENTRATION BY REGION

ONTARIO MINISTRY OF THE ENVIRONMENT
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY
SUMMARY STATISTICS OF CONCENTRATION

		REGION-E						REGION-W					
		SULFATE			NITRATE			CALCIUM			CHLORIDE		
# OF SAMPLES		UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3	UG/M3
MAXIMUM	7.05	35	6.73	35	3.531	35	11.772	35	3.462	35	0.558	35	0.561
MINIMUM	1.00	1.00	1.19	0.062	0.083	0.050	0.080	0.050	0.080	0.050	0.080	0.050	0.014
ARITH. MEAN	3.60	3.60	3.24	0.236	0.732	0.641	0.265	0.641	0.732	0.641	0.265	0.641	0.105
ARITH. STD. DEV	1.15	1.15	1.29	0.595	1.991	1.763	0.132	1.991	1.763	1.763	0.132	1.763	0.132
GEOM. MEAN	3.77	3.02	3.02	0.135	0.376	0.390	0.070	0.135	0.376	0.390	0.238	0.135	0.070
1ST QUARTILE	2.72	2.34	0.090	0.222	0.216	0.158	0.040	0.222	0.216	0.216	0.158	0.216	0.040
2ND QUARTILE	3.60	3.23	0.120	0.373	0.361	0.252	0.064	0.373	0.361	0.361	0.252	0.361	0.064
3RD QUARTILE	4.42	3.74	0.158	0.546	0.666	0.334	0.092	0.546	0.666	0.666	0.334	0.666	0.092
MISSING VALUES	4	3	2	2	3	4	3	3	3	3	3	3	3
		IRON			ALUMINUM			LEAD			COPPER		
MAXIMUM	0.375	35	0.361	0.386	0.177	0.037	0.019	0.177	0.037	0.037	0.019	0.037	0.006
MINIMUM	0.055	0.055	0.010	0.003	0.004	0.001	0.0006	0.004	0.001	0.001	0.0006	0.001	0.000
ARITH. MEAN	0.152	0.111	0.104	0.056	0.056	0.012	0.003	0.056	0.056	0.056	0.012	0.056	0.003
ARITH. STD. DEV	0.081	0.081	0.096	0.042	0.042	0.009	0.001	0.096	0.042	0.042	0.009	0.096	0.001
GEOM. MEAN	0.135	0.086	0.063	0.041	0.041	0.009	0.0004	0.063	0.041	0.041	0.009	0.063	0.002
1ST QUARTILE	0.092	0.051	0.034	0.031	0.031	0.005	0.0005	0.034	0.031	0.031	0.005	0.034	0.002
2ND QUARTILE	0.128	0.084	0.065	0.045	0.045	0.010	0.003	0.065	0.045	0.045	0.010	0.065	0.003
3RD QUARTILE	0.189	0.151	0.167	0.071	0.071	0.015	0.0015	0.167	0.071	0.071	0.015	0.167	0.003
MISSING VALUES	5	3	3	3	3	3	3	3	3	3	3	3	3
		NICKEL			VANADIUM			CADMIUM			SULFATE		
MAXIMUM	0.04454	35	0.0060	0.0250	0.02330	2.9918	35	0.0014	0.5001	0.5001	4.65	35.00	15.30
MINIMUM	0.00012	0.0002	0.0006	0.0134	0.00240	1.2835	1.63	0.0001	1.63	1.63	0.19	0.19	0.19
ARITH. MEAN	0.00305	0.0010	0.0014	0.0014	0.00240	1.2835	2.88	0.00240	1.2835	1.2835	0.97	0.97	0.97
ARITH. STD. DEV	0.00781	0.0012	0.0071	0.0094	0.0094	0.7172	0.72	0.0071	0.7172	0.7172	2.58	2.58	2.58
GEOM. MEAN	0.00113	0.0007	0.0106	0.0087	0.0087	1.1261	2.79	0.0007	1.1261	1.1261	0.53	0.53	0.53
1ST QUARTILE	0.00039	0.0005	0.0078	0.0036	0.0036	0.7569	2.27	0.0005	0.7569	0.7569	0.52	0.52	0.52
2ND QUARTILE	0.00108	0.0007	0.0131	0.0064	0.0064	1.0816	2.76	0.0007	1.0816	1.0816	0.69	0.69	0.69
3RD QUARTILE	0.00268	0.0010	0.0196	0.00215	0.00215	1.6400	3.46	0.00215	1.6400	1.6400	4.00	4.00	4.00
MISSING VALUES			3			3					3		
		ZINC			CADMIUM			SULFATE			TOTAL NITRATE		
MAXIMUM	0.04454	35	0.0060	0.0250	0.02330	2.9918	35	0.0014	0.5001	0.5001	4.65	35.00	15.30
MINIMUM	0.00012	0.0002	0.0006	0.0134	0.00240	1.2835	1.63	0.0001	1.63	1.63	0.19	0.19	0.19
ARITH. MEAN	0.00305	0.0010	0.0014	0.0014	0.00240	1.2835	2.88	0.00240	1.2835	1.2835	0.97	0.97	0.97
ARITH. STD. DEV	0.00781	0.0012	0.0071	0.0094	0.0094	0.7172	0.72	0.0071	0.7172	0.7172	2.58	2.58	2.58
GEOM. MEAN	0.00113	0.0007	0.0106	0.0087	0.0087	1.1261	2.79	0.0007	1.1261	1.1261	0.53	0.53	0.53
1ST QUARTILE	0.00039	0.0005	0.0078	0.0036	0.0036	0.7569	2.27	0.0005	0.7569	0.7569	0.52	0.52	0.52
2ND QUARTILE	0.00108	0.0007	0.0131	0.0064	0.0064	1.0816	2.76	0.0007	1.0816	1.0816	0.69	0.69	0.69
3RD QUARTILE	0.00268	0.0010	0.0196	0.00215	0.00215	1.6400	3.46	0.00215	1.6400	1.6400	4.00	4.00	4.00
MISSING VALUES			3			3					3		
		UG/M3			UG/M3			UG/M3			UG/M3		
MAXIMUM	0.04454	35	0.0060	0.0250	0.02330	2.9918	35	0.0014	0.5001	0.5001	4.65	35.00	15.30
MINIMUM	0.00012	0.0002	0.0006	0.0134	0.00240	1.2835	1.63	0.0001	1.63	1.63	0.19	0.19	0.19
ARITH. MEAN	0.00305	0.0010	0.0014	0.0014	0.00240	1.2835	2.88	0.00240	1.2835	1.2835	0.97	0.97	0.97
ARITH. STD. DEV	0.00781	0.0012	0.0071	0.0094	0.0094	0.7172	0.72	0.0071	0.7172	0.7172	2.58	2.58	2.58
GEOM. MEAN	0.00113	0.0007	0.0106	0.0087	0.0087	1.1261	2.79	0.0007	1.1261	1.1261	0.53	0.53	0.53
1ST QUARTILE	0.00039	0.0005	0.0078	0.0036	0.0036	0.7569	2.27	0.0005	0.7569	0.7569	0.52	0.52	0.52
2ND QUARTILE	0.00108	0.0007	0.0131	0.0064	0.0064	1.0816	2.76	0.0007	1.0816	1.0816	0.69	0.69	0.69
3RD QUARTILE	0.00268	0.0010	0.0196	0.00215	0.00215	1.6400	3.46	0.00215	1.6400	1.6400	4.00	4.00	4.00
MISSING VALUES			3			3					3		

ONTARIO MINISTRY OF THE ENVIRONMENT
APROS - ACIDIC PRECIPITATION IN ONTARIO STUDY

SUMMARY STATISTICS OF CONCENTRATION									
		SULFUR, DIOX		SULFATE		NITRIC		CALCIUM	
# OF SAMPLES		UG/M ³		UG/M ³		UG/M ³		UG/M ³	
# OF SAMPLES	91	91	6.08	0.264	0.441	1.591	91	0.869	91
MINIMUM	1	35.76	0.43	0.013	0.000	0.022	91	0.099	91
ARITH. MEAN	1	0.19	2.28	0.087	0.160	0.266	91	0.251	91
ARITH. STD. DEV	1	4.87	1.12	0.038	0.104	0.263	91	0.134	91
GEOM. MEAN	1	2.37	2.01	0.067	0.132	0.182	91	0.226	91
1ST QUARTILE	1	1.20	1.53	0.040	0.081	0.099	91	0.163	91
2ND QUARTILE	1	2.16	2.10	0.075	0.128	0.176	91	0.223	91
3RD QUARTILE	1	4.71	2.88	0.129	0.216	0.290	91	0.471	91
MISSING VALUES	7	7	7	7	7	7	7	8	7
# OF SAMPLES	91	91	1.580	2.590	0.625	0.039	91	0.0367	91
MINIMUM	1	0.635	0.067	0.002	0.003	0.001	91	0.0006	91
ARITH. MEAN	1	0.167	0.163	0.193	0.091	0.008	91	0.0057	91
ARITH. STD. DEV	1	0.109	0.280	0.405	0.117	0.007	91	0.016	91
GEOM. MEAN	1	0.146	0.075	0.019	0.059	0.006	91	0.0039	91
1ST QUARTILE	1	0.102	0.042	0.034	0.033	0.003	91	0.0029	91
2ND QUARTILE	1	0.134	0.079	0.073	0.084	0.006	91	0.0038	91
3RD QUARTILE	1	0.166	0.154	0.150	0.086	0.011	91	0.0059	91
MISSING VALUES	7	7	7	7	7	7	7	7	7
# OF SAMPLES	91	91	0.0064	0.0002	0.0006	0.0001	91	2.0514	91
MAXIMUM	1	0.05417	0.00012	0.0002	0.0006	0.0001	91	0.2111	91
MINIMUM	1	0.00387	0.0009	0.0009	0.0118	0.00295	91	0.1911	91
ARITH. MEAN	1	0.00776	0.0010	0.0010	0.0180	0.00508	91	2.56	91
ARITH. STD. DEV	1	0.00157	0.0007	0.0077	0.0077	0.00066	91	0.7104	91
GEOM. MEAN	1	0.00063	0.0004	0.0046	0.0046	0.00023	91	0.5226	91
1ST QUARTILE	1	0.00151	0.0007	0.0090	0.0090	0.00047	91	0.7515	91
2ND QUARTILE	1	0.00319	0.0010	0.0131	0.0131	0.00178	91	1.0038	91
3RD QUARTILE	1	7	7	7	7	7	7	7	7
MISSING VALUES	7	7	7	7	7	7	7	7	7
POTASSIUM									
UG/M ³									
# OF SAMPLES	91	91	0.191	0.009	0.058	0.049	91	0.191	91
MAXIMUM	1	3.87	1.12	0.038	0.104	0.263	91	0.226	91
MINIMUM	1	4.87	1.20	0.067	0.132	0.182	91	0.049	91
ARITH. MEAN	1	2.37	1.53	0.040	0.081	0.099	91	0.163	91
ARITH. STD. DEV	1	4.71	2.88	0.129	0.216	0.355	91	0.471	91
GEOM. MEAN	1	0.146	0.075	0.019	0.059	0.0178	91	0.058	91
1ST QUARTILE	1	0.102	0.042	0.034	0.033	0.006	91	0.029	91
2ND QUARTILE	1	0.134	0.079	0.073	0.084	0.011	91	0.038	91
3RD QUARTILE	1	0.166	0.154	0.150	0.086	0.011	91	0.059	91
MISSING VALUES	7	7	7	7	7	7	7	7	7
CHLORIDE									
UG/M ³									
# OF SAMPLES	91	91	0.869	0.022	0.251	0.134	91	0.251	91
MAXIMUM	1	3.87	1.12	0.038	0.104	0.263	91	0.226	91
MINIMUM	1	4.87	1.20	0.067	0.132	0.182	91	0.049	91
ARITH. MEAN	1	2.37	1.53	0.040	0.081	0.099	91	0.163	91
ARITH. STD. DEV	1	4.71	2.88	0.129	0.216	0.355	91	0.471	91
GEOM. MEAN	1	0.146	0.075	0.019	0.059	0.0178	91	0.058	91
1ST QUARTILE	1	0.102	0.042	0.034	0.033	0.006	91	0.029	91
2ND QUARTILE	1	0.134	0.079	0.073	0.084	0.011	91	0.038	91
3RD QUARTILE	1	0.166	0.154	0.150	0.086	0.011	91	0.059	91
MISSING VALUES	7	7	7	7	7	7	7	7	7
NITRATE									
UG/M ³									
# OF SAMPLES	91	91	0.191	0.009	0.058	0.049	91	0.226	91
MAXIMUM	1	3.87	1.12	0.038	0.104	0.263	91	0.226	91
MINIMUM	1	4.87	1.20	0.067	0.132	0.182	91	0.049	91
ARITH. MEAN	1	2.37	1.53	0.040	0.081	0.099	91	0.163	91
ARITH. STD. DEV	1	4.71	2.88	0.129	0.216	0.355	91	0.471	91
GEOM. MEAN	1	0.146	0.075	0.019	0.059	0.0178	91	0.058	91
1ST QUARTILE	1	0.102	0.042	0.034	0.033	0.006	91	0.029	91
2ND QUARTILE	1	0.134	0.079	0.073	0.084	0.011	91	0.038	91
3RD QUARTILE	1	0.166	0.154	0.150	0.086	0.011	91	0.059	91
MISSING VALUES	7	7	7	7	7	7	7	7	7
NITRATE									
UG/M ³									
# OF SAMPLES	91	91	0.191	0.009	0.058	0.049	91	0.226	91
MAXIMUM	1	3.87	1.12	0.038	0.104	0.263	91	0.226	91
MINIMUM	1	4.87	1.20	0.067	0.132	0.182	91	0.049	91
ARITH. MEAN	1	2.37	1.53	0.040	0.081	0.099	91	0.163	91
ARITH. STD. DEV	1	4.71	2.88	0.129	0.216	0.355	91	0.471	91
GEOM. MEAN	1	0.146	0.075	0.019	0.059	0.0178	91	0.058	91
1ST QUARTILE	1	0.102	0.042	0.034	0.033	0.006	91	0.029	91
2ND QUARTILE	1	0.134	0.079	0.073	0.084	0.011	91	0.038	91
3RD QUARTILE	1	0.166	0.154	0.150	0.086	0.011	91	0.059	91
MISSING VALUES	7	7	7	7	7	7	7	7	7
NITRATE									
UG/M ³									
# OF SAMPLES	91	91	0.191	0.009	0.058	0.049	91	0.226	91
MAXIMUM	1	3.87	1.12	0.038	0.104	0.263	91	0.226	91
MINIMUM	1	4.87	1.20	0.067	0.132	0.182	91	0.049	91
ARITH. MEAN	1	2.37	1.53	0.040	0.081	0.099	91	0.163	91
ARITH. STD. DEV	1	4.71	2.88	0.129	0.216	0.355	91	0.471	91
GEOM. MEAN	1	0.146	0.075	0.019	0.059	0.0178	91	0.058	91
1ST QUARTILE	1	0.102	0.042	0.034	0.033	0.006	91	0.029	91
2ND QUARTILE	1	0.134	0.079	0.073	0.084	0.011	91	0.038	91
3RD QUARTILE	1	0.166	0.154	0.150	0.086	0.011	91	0.059	91
MISSING VALUES	7	7	7	7	7	7	7	7	7
NITRATE									
UG/M ³									
# OF SAMPLES	91	91	0.191	0.009	0.058	0.049	91	0.226	91
MAXIMUM	1	3.87	1.12	0.038	0.104	0.263	91	0.226	91
MINIMUM	1	4.87	1.20	0.067	0.132	0.182	91	0.049	91
ARITH. MEAN	1	2.37	1.53	0.040	0.081	0.099	91	0.163	91
ARITH. STD. DEV	1	4.71	2.88	0.129	0.216	0.355	91	0.471	91
GEOM. MEAN	1	0.146	0.075	0.019	0.059	0.0178	91	0.058	91
1ST QUARTILE	1	0.102	0.042	0.034	0.033	0.006	91	0.029	91
2ND QUARTILE	1	0.134	0.079	0.073	0.084	0.011	91	0.038	91
3RD QUARTILE	1	0.166	0.154	0.150	0.086	0.011	91	0.059	91
MISSING VALUES	7	7	7	7	7	7	7	7	7
NITRATE									
UG/M ³									
# OF SAMPLES	91	91	0.191	0.009	0.058	0.049	91	0.226	91
MAXIMUM	1	3.87	1.12	0.038	0.104	0.263	91	0.226	91
MINIMUM	1	4.87	1.20	0.067	0.132	0.182	91	0.049	91
ARITH. MEAN	1	2.37	1.53	0.040	0.081	0.099	91	0.163	91
ARITH. STD. DEV	1	4.71	2.88	0.129	0.216	0.355	91	0.471	91
GEOM. MEAN	1	0.146	0.075	0.019	0.059	0.0178	91	0.058	91
1ST QUARTILE	1	0.102	0.042	0.034	0.033	0.006	91	0.029	91
2ND QUARTILE	1	0.134	0.079	0.073	0.084	0.011	91	0.038	91
3RD QUARTILE	1	0.166	0.154	0.150	0.086	0.011	91	0.059	91
MISSING VALUES	7	7	7	7	7	7	7	7	7
NITRATE									
UG/M ³									
# OF SAMPLES	91	91	0.191	0.009	0.058	0.049	91	0.226	91
MAXIMUM	1	3.87	1.12	0.038	0.104	0.263	91	0.226	91
MINIMUM	1	4.87	1.20	0.067	0.132	0.182	91	0.049	91
ARITH. MEAN	1	2.37	1.53	0.040	0.081	0.099	91	0.163	91
ARITH. STD. DEV	1	4.71	2.88	0.129	0.216	0.355	91	0.471	91
GEOM. MEAN	1	0.146	0.075	0.019	0.059	0.0178	91	0.058	91
1ST QUARTILE	1	0.102	0.042	0.034	0.033	0.006	91	0.029	91
2ND QUARTILE	1	0.134	0.079	0.073	0.084	0.011	91	0.038	91
3RD QUARTILE	1	0.166	0.154	0.150	0.086	0.011	91	0.059	91
MISSING VALUES	7	7	7	7	7	7	7	7	7
NITRATE									
UG/M ³									
# OF SAMPLES	91	91	0.19						

ONTARIO MINISTRY OF THE ENVIRONMENT
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY
SUMMARY STATEMENT OF CONCERNED AUTHOR

ONTARIO MINISTRY OF THE ENVIRONMENT
APIGS - ACIDIC PRECIPITATION IN ONTARIO STUDY
SUMMARY STATISTICS OF CONCENTRATION

		STATION, DIX		SULFATE		NITRATE		CALCIUM		CHLORIDE		POPULATION	
		UG/M ³		UG/M ³		UG/M ³		UG/M ³		UG/M ³		UG/M ³	
# OF SAMPLES	:	47	47	0.400	1.722	47	1.794	47	1.072	47	6.117		
MAXIMUM	:	16.19	6.88	0.036	0.115	0.121	0.429	0.050	0.115	0.046	0.046		
MINIMUM	:	0.72	3.53	0.065	1.46	0.065	0.331	0.065	0.598	0.334	0.303		
ARITH. MEAN	:	3.08	3.08	0.108	3.11	0.108	0.333	0.108	0.481	0.203	0.1946		
ARITH. STD. DEV	:	2.46	1.46	0.108	2.58	0.108	0.333	0.108	0.380	0.203	0.132		
GEOM. MEAN	:	2.58	2.61	0.081	2.61	0.081	0.230	0.081	0.202	0.210	0.074		
1ST QUARTILE	:	1.66	2.68	0.070	3.07	0.103	0.334	0.070	0.499	0.282	0.110		
2ND QUARTILE	:	3.45	4.66	0.143	5.00	0.519	0.900	0.143	0.391	0.169	6		
3RD QUARTILE	:	6	IRON	UG/M ³	ALUMINIUM	UG/M ³	MANGANESE	UG/M ³	LEAD	MANGANESE	UG/M ³	COPPER	UG/M ³
MISSING VALUES	:	6	4.7	0.293	0.389	0.548	0.548	0.47	0.042	0.042	0.006	47	47
# OF SAMPLES	:	47	0.663	0.018	0.003	0.003	0.003	0.003	0.005	0.005	0.0033	0.001	
MAXIMUM	:	0.93	0.215	0.117	0.103	0.103	0.122	0.103	0.17	0.17	0.0125		
MINIMUM	:	0.131	0.073	0.073	0.073	0.073	0.131	0.073	0.09	0.09	0.0115	0.001	
ARITH. MEAN	:	0.189	0.094	0.094	0.061	0.061	0.068	0.061	0.015	0.015	0.0092	0.002	
ARITH. STD. DEV	:	0.137	0.063	0.063	0.027	0.027	0.046	0.063	0.010	0.010	0.0051	0.002	
GEOM. MEAN	:	0.173	0.101	0.053	0.053	0.053	0.080	0.053	0.014	0.014	0.0079	0.002	
1ST QUARTILE	:	0.246	0.170	0.143	0.143	0.143	0.143	0.143	0.020	0.020	0.0143	0.003	
2ND QUARTILE	:	0.246	0.246	0.170	0.170	0.170	0.170	0.170	0.020	0.020	0.0143	0.003	
3RD QUARTILE	:	0.246	0.246	0.246	0.246	0.246	0.246	0.246	0.020	0.020	0.0143	0.003	
MISSING VALUES	:	6	NICKEL	UG/M ³	ZINC	UG/M ³	CADMIUM	UG/M ³	SULFATE	UG/M ³	TOTAL N		
# OF SAMPLES	:	47	0.00533	0.00533	47	0.0454	0.00449	47	1.5713	47	47.00		
MAXIMUM	:	0.00013	0.00013	0.0002	0.0058	0.00025	0.00025	0.00025	0.4809	0.67	2.12		
MINIMUM	:	0.000167	0.000167	0.0015	0.0454	0.0173	0.0094	0.0094	1.9302	2.72	0.13		
ARITH. MEAN	:	0.000117	0.000117	0.0011	0.0012	0.0012	0.00101	0.00101	0.2304	1.33	0.37		
ARITH. STD. DEV	:	0.000131	0.000131	0.0012	0.0148	0.0148	0.0064	0.0064	0.9852	2.50	0.46		
GEOM. MEAN	:	0.000085	0.000085	0.0008	0.0091	0.0091	0.00037	0.00037	0.8118	2.02	0.33		
1ST QUARTILE	:	0.000136	0.000136	0.0012	0.0143	0.0143	0.00048	0.00048	1.0567	2.63	0.45		
2ND QUARTILE	:	0.000231	0.000231	0.0017	0.0225	0.0225	0.00087	0.00087	1.2668	2.93	0.63		
3RD QUARTILE	:	0.000231	0.000231	0.0017	0.0225	0.0225	0.00087	0.00087	1.2668	2.93	0.63		
MISSING VALUES	:	7									5.00		

ONTARIO MINISTRY OF THE ENVIRONMENT
APICS - ACIDIC PRECIPITATION IN ONTARIO STUDY
SUMMARY STATISTICS OF CONCENTRATION

		REGION-SW						REGION-N					
		SULFATE			NITRIC			CALCIUM			CHLORIDE		
		UG/M ₃											
# OF SAMPLES	:	63	14.32	0.704	1.638	63	2.735	63	1.091	63	0.442	63	0.011
MAXIMUM	:	41.15	0.12	0.018	0.242	63	0.091	63	1.000	63	0.552	63	0.108
MINIMUM	:	2.40	5.06	0.233	0.944	63	0.759	63	0.217	63	0.523	63	0.064
ARITH. STD. DEV	:	10.07	2.69	0.118	0.392	63	0.477	63	0.628	63	0.523	63	0.094
GEOM. MEAN	:	6.33	4.11	0.136	0.976	63	0.740	63	0.404	63	0.407	63	0.075
1ST QUARTILE	:	8.57	3.43	0.131	0.740	63	0.902	63	0.538	63	0.599	63	0.099
2ND QUARTILE	:	5.26	4.57	0.214	0.902	63	0.645	63	0.664	63	0.125	63	0.125
3RD QUARTILE	:	9.60	6.35	0.236	1.210	63	0.951	63	1.210	63	0.951	63	0.125
MISSING VALUES	:	12.40	4	5	4	63	5	5	5	5	5	63	4
# OF SAMPLES	:	63	IRON	ALUMINUM	MAGNESIUM	LEAD	MANGANESE	63	63	63	63	63	0.007
MAXIMUM	:	0.389	UG/M ₃	0.001									
MINIMUM	:	0.079	0.618	0.643	0.499	0.072	0.0278	63	0.0024	63	0.0100	63	0.003
ARITH. STD. DEV	:	0.178	0.030	0.006	0.003	0.001	0.001	63	0.020	63	0.014	63	0.001
GEOM. MEAN	:	0.074	0.109	0.147	0.152	0.152	0.152	63	0.020	63	0.014	63	0.003
1ST QUARTILE	:	0.129	0.132	0.095	0.112	0.112	0.112	63	0.017	63	0.017	63	0.003
2ND QUARTILE	:	0.163	0.100	0.053	0.079	0.079	0.079	63	0.017	63	0.017	63	0.003
3RD QUARTILE	:	0.207	0.167	0.095	0.122	0.122	0.122	63	0.029	63	0.029	63	0.004
MISSING VALUES	:	4	0.217	0.201	0.192	0.192	0.192	63	0.127	63	0.127	63	0.004
# OF SAMPLES	:	63	NICKEL	VANADIUM	ZINC	CALCIUM	SULFATE N	63	63	63	63	63	0.004
MAXIMUM	:	0.01367	UG/M ₃	0.004									
MINIMUM	:	0.00024	0.0075	0.0565	0.01970	12.0209	21.73	63.00	63.00	63.00	63.00	63.00	0.004
ARITH. STD. DEV	:	0.00210	0.0003	0.0006	0.0001	0.3134	2.19	1.93	2.19	2.19	2.19	2.19	0.36
GEOM. MEAN	:	0.00197	0.0022	0.0285	0.00310	1.5030	6.77	1.18	6.77	6.77	6.77	6.77	0.36
1ST QUARTILE	:	0.00161	0.0014	0.0133	0.00477	1.1865	3.26	1.11	3.26	3.26	3.26	3.26	0.36
2ND QUARTILE	:	0.00122	0.0018	0.0236	0.00117	1.1865	6.13	4.61	6.13	6.13	6.13	6.13	0.36
3RD QUARTILE	:	0.00160	0.0013	0.0202	0.00056	0.7619	4.61	0.97	4.61	4.61	4.61	4.61	0.36
MISSING VALUES	:	0.00254	0.0018	0.0288	0.0081	1.2303	6.33	1.14	1.2303	1.2303	1.2303	1.2303	0.36

